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The Impact of Financial Distress Status and Corporate Governance Structures on the Level of Voluntary Disclosure Within Annual Reports of Firms (Case Study of Non-financial Firms in Indonesia Over the Period of 2009-2011)*

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The purpose of this research is to examine the impact of financial distress status and corporate governance structures on the level of voluntary disclosure. We apply six independent variables, including the firm's financial distress status and five components of corporate governance structures, such as board independence, audit committee independence, institutional ownership, board meeting frequency, and audit committee meeting frequency. This research is carried out by examining the annual reports of 114 non-financial firms listed at the Indonesian Stock Exchange over the period of 2009-2011. To test hypotheses, we undergo two different analyses, including independent samples *t*-test and Multiple Linear Regression. We find that: (1) The audit committee independence and the audit committee meeting frequency have significant positive impacts on the level of voluntary disclosure; (2) The financial distress status is negatively related to the level of disclosure at various levels of significance; and (3) All the independent variables are simultaneously related to voluntary disclosure.

Keywords: corporate governance structures, financial distress, voluntary disclosure

Introduction

Financial distress is an interesting area to observe, since this condition has a direct impact towards the firm, shareholder, and eventually on the public. Andrade and Kaplan (1998) described financial distress as a condition when a firm fails to pay its liabilities to the third party or an indication when a firm attempts to restructure debt because of the difficulty to pay it off. In this case, a firm can be said to be in the minimum cash flow, which means that the firm is in an illiquid condition but is still solvent.

Pranowo, Achsani, Manurung, and Nuryartono (2010) observed corporate financial distress dynamics in Indonesia over the period of 2004-2008 and concluded that financial crisis in Indonesia has started since the abolition of fuel subsidy in October 2005 and culminated when global financial crisis (sub-prime mortgage crisis) happened in the United States during the early quarter IV of 2007. This phenomenon leads to the delisting of public firms listed at the Indonesian Stock Exchange, such as Bahtera Adimina Samudera Corp. and

* The data used in this study are available from the Indonesian Stock Exchange.

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Texmaco Jaya Corp.. Nasir and Abdullah (2004) and Almilia (2006) revealed that a financially distressed firm is a firm which has a financial performance deflation as a result of the impact of the economic crisis and poor management that is indicated by negative net profits consecutively in two years.

Many studies state that weak corporate governance is the main factor that worsens the economy of Indonesia after crisis (Mitton, 2002; Wijantini, 2006; Akhtaruddin, M. A. Hossain, M. Hossain, & Yao, 2009). The revealed financial report of manipulation scandals by Lippo Corp. and Kimia Farma Corp. (Boediono, 2005) and the report of the Forum for Corporate Governance in Indonesia (FCGI) 2008 unveiled that PricewaterhouseCoopers' survey about over international investors in 2002 shows that Indonesia occupies the lowest position in terms of audit and compliance, accountability to shareholders, disclosure, and transparency standards (Irawan & Farahmita, 2012). The role of a director has prompted the government and investors to pay more attention to the disclosure and transparency in financial reports and corporate governance practices.

The adoption of corporate disclosure rules is not enough; hence, it is necessary to maintain institutional structures as well as corporate governance structures to monitor the firm's manager and manage the firm so that the information disclosure will be higher and adequate (Li & Qi, 2008; Akhtaruddin et al., 2009; Prawinandi, Suhardjanto, & Triatmoko, 2012). Jensen and Meckling (1976), Akhtaruddin et al. (2009), and Wijaya (2009) confirmed the effect of corporate governance towards voluntary disclosure by linking it to the positive agency theory framework.

This research will focus on the impact of financial distress and the corporate governance structures on voluntary disclosure in a firm's annual report. Variables used in this research refer to 39 items in Larcker, Richardson, and Tuna (2007). The board of directors and the audit committee are taken from a statement of the Asian Development Bank (ADB) in Ismoyowati (2011) and the FCGI (2001) as cited in Prawinandi et al. (2012) which revealed that the core structure of corporate governance in Indonesia is the board of commissioners, including the audit committee. The Asia crisis that occurred in 1997-1998 was caused by the failures of the two proxies. Institutional ownership is taken due to their voting rights useful for monitoring the agencies (management); therefore, the institutional ownership proportion will affect annual voluntary disclosure of the firm, while the board meeting frequency and the audit committee meeting frequency are considered by the regulatory Komite Nasional Kebijakan Governance (KNKG, 2006) and Badan Pengawas Pasar Modal (BAPEPAM). BAPEPAM's (2004) rule, Kep-29/PM/2004, requires meeting procurement for the board and audit committee periodically.

The varied results from prior studies prove that the impact of board independence, audit committee independence, institutional ownership, board meeting frequency, and audit committee meeting frequency on the level of voluntary disclosure requires more supportive theory and further research. An independent board is one of the components of an effective corporate governance structure. Akhtaruddin et al. (2009), Samaha (2010), Karagül and Yönet (2012), and Samaha, Dahawy, Hussainey, and Stapleton (2012) revealed a significant and positive correlation on that topic. Al-Moataz and Hussainey (2012) and Matoussi and Chakroun (2008) reported a significant and negative effect, while Wijaya (2009) and Sánchez, Domínguez, and Álvarez (2011) documented that both are not significant.

The audit committee is responsible for implementing accounting in financial reporting and monitoring internal control systems (Owolabi & Dada, 2011). Ho and Wong (2001; as cited in Saputri, 2010) and Natalia and Zulaikha (2012) found a positive and significant correlation, while Nasir and Abdullah (2004), Mujiyono

and Nany (2010), Saputri (2010), Anggarini (2010), Anyta and Mutmainah (2012), and Kharis and Suhardjanto (2012) found no correlation between the two. For institutional ownership variables, Matoussi and Chakroun (2008), Akhtaruddin et al. (2009), Khodadadi, Khazami, and Aflatooni (2010), and Samaha et al. (2012) found a positive effect. Primastuti (2012) asserted a negative and significant effect, while Sari, Anugerah, and Dwiningsih (2010), Wahyuningtyas and Nugrahanti (2012), and Karagül and Yönet (2012) explained that there is no correlation between the two variables.

Meeting intensity is proxied by two variables in this study, namely, the intensity of board meetings and the intensity of audit committee meetings. Ettredge, Johnstone, Stone, and Wang (2011) and Kharis and Suhardjanto (2012) revealed a positive and significant effect. Sánchez et al. (2011) showed a negative relationship, while Waryanto (2010) and Primastuti (2012) showed that there is no relationship between the two variables and the disclosure. As for the intensity of the audit committee meetings, Putri (2009; as cited in Waryanto, 2010) and Ettredge et al. (2011) showed that there is a significant relationship, while Waryanto (2010) and Kharis and Suhardjanto (2012) argued that the intensity of audit committee meetings has no effect on disclosure.

Furthermore, the studies that observe the impact of distress status on the extensive level of voluntary disclosure in Indonesia are still limited, and although there are some, the results still vary. Research that supports the agency theory states that highly leveraged firms or firms involved with bad news tend to disclose more information in their annual reports to reduce future costs and avoid bankruptcy. This is supported by studies of Wijantini (2006) and Webb and Cohen (2007). But on the other hand, according to signaling theory, a distressed firm will tend to be more confined and try to keep the information from public. The findings of Nasir and Abdullah (2004) and Saputri (2010) noted a result that is in line with signaling theory, while Wijaya (2009) did not find the relationship between both of them.

Consistent with previous studies, this research uses a firm’s characteristics as a control variable, including the firm size, leverage, and profitability (Nasir & Abdullah, 2004; Al-Moataz & Hussainey, 2012; Primastuti, 2012), and adds the nature of an audit firm as a new proxy that can be used to measure the auditor’s quality, which is the quality of audit committee independence. This study uses public firms in Indonesia due to the presence of Perseroan Terbatas (LLC) structures and corporate governance regulations in Undang-Undang No. 40 tahun 2007 as well as BAPEPAM Kep-134/BL/2006 (BAPEPAM, 2006) which obligate publicly listed companies to submit annual reports.

Data used in this study are obtained from all the non-financial firms listed at the Indonesian Stock Exchange, not including firms which are not parts of the financial industry. This is because firms in the financial industry have different regulations and liquidity characteristics than those in other firms. This study observes the period of 2009-2011 because of the global financial crisis which occurred in the United States in 2008 and inevitably impacted the Indonesian economy. In those years, the global business was also experiencing difficulties, characterized by a reduction of Indonesian exports during the period of 2008-2009. We take data from the years of 2009-2011, because we predict that there are many firms experiencing financial distress in consequence of the global financial crisis that occurred in 2008.

This research is based on a study conducted by Nasir and Abdullah (2004) enhanced by adopting some factors as well as adding new factors. Some of the developments done are: (1) The samples taken are non-financial corporate data in financial distress condition listed at the Indonesian Stock Exchange over the

period of 2009-2011 based on the established criteria; (2) This study aims to add new independent variables such as the audit committee meeting frequency and expand the research conducted by Htay, Rashid, Adnan, and Meera (2012) by adding the board meeting frequency variable in expectation of obtaining a better figure of corporate governance structure; (3) This research adds a new control variable, the nature of an audit firm, as a standard of audit quality in voluntary disclosure; and (4) A voluntary disclosure index (IPS) is used in this research, as a combination of disclosure items by Webb (2002) and Nasir and Abdullah (2004), which has been adjusted to Accounting Financial Standard (SAK) applied in Indonesia.

This study generally aims to analyze the influence of the financial distress status and the corporate governance structures on the level of voluntary disclosure provided in the annual report of the firm. This study is expected to enrich the existing literature by providing a comprehensive list to measure the level of voluntary disclosure by financial distress of firms in Indonesia. For investors and prospective investors, this research is expected to help provide an overview of the firm's performance by observing the implementation of corporate governance, thereby the investors can make the right investment decisions.

In the next section, we will discuss the background literature and develop our hypotheses. In Section 3, we will provide our research design and data. In Section 4, we will describe the robustness of the results, while in Section 5, we will provide the conclusions of this study.

Background Literature and Hypotheses

The term "corporate governance" is based on the agency theory. Jensen and Meckling (1976) described this theory as an employment contract between principal and agent, in which one or more principals (owners) delegate some of their authorities to make decisions towards the agent (manager). Therefore, an agent (manager) should provide information related to the conditions of the firm to the owner, such as the disclosure of accounting information in the form of annual report as an evaluation of the manager's performance. However, this system evokes information asymmetry, called agency conflict. In addition, this conflict has a potential to issue the problems of adverse selection and moral hazard, if the manager's behavior is against the interests of investors (Matoussi & Chakroun, 2008; Ujiyantho, 2009).

Agency theory explains that both of the parties (owner and agent) tend to maximize their own profits. In this case, the manager has a potential to hide some information that result in a lack of funding transparency in the firm and ultimately maximize his/her own benefits by conucting a less effective policy (FCGI, 2012). Separation of ownership also creates agency costs, such as monitoring costs, bonding costs, and the residual loss. In agency theory, the greater the information asymmetry between managers and shareholders, the more the investors will ask for information. So in agency theory, firms tend to provide more information in order to reduce the information asymmetry between the firms and external parties (Nuswandari, 2009; Mujiyono & Nany, 2010). The disclosure of such non-financial information is called voluntary disclosure (Saputri, 2010).

Signaling theory explains the reason why a firm provides information in form of an annual report to its shareholders and the public. The adverse selection condition allows external investors to assess the firm at a price lower than it should be. In this point, the management will provide non-financial information (voluntary disclosure) as a signal to the shareholders and the capital market (Matoussi & Chakroun, 2008). This will enhance the credibility and the success of the firm; it will thereby optimize financial cost and the capital market will ultimately assess the shares in appropriate value.

There are two kinds of signal that can be disclosed by the firm: the good news and the bad news. The good news of course, if disclosed, will give a good impression to investors and enhance the enterprise values and the share prices. But when a firm is in a financially distressed condition or is involved with bad news, its management will tend to be more private and provide limited information.

Essentially, the existence of corporate governance will increase the quality of accounting information for stakeholders through a set of institutional arrangements (Li & Qi, 2008). Khodadadi et al. (2010) emphasized that corporate governance is a factor that leads to a better quality of corporate performance, in particular, information presented by management. Good corporate governance is a means for a firm to continually grow over a long period and win in the global business competition.

To achieve good corporate governance, a firm requires a good corporate governance structure. Prawinandi et al. (2012) described corporate governance structure as the core organ within a company that works as a guard who manages the firm and has the obligation to carry out good corporate governance throughout the firm's performance. This structure is essential to improve the sustainable success and the accountability of a firm through a set of rules and procedures for making decisions in corporate affairs. In Indonesia, the corporate governance structure is reflected in the 2-tier board system, which is the board of commissioners and the board of directors (FCGI, 2001; as cited in Prawinandi et al., 2012). Organizations which have an authority to maintain the existence of good corporate governance in Indonesia are Komite Nasional Kebijakan Corporate Governance (KNKCG), FCGI, and the Indonesian Institute for Corporate Governance (IICG).

Good corporate governance can strengthen the control within the firm, reduce opportunistic behavior, and reduce information asymmetry; thus, it has a positive impact on the quality of information disclosed (voluntary disclosure) (Li & Qi, 2008). The five principles of good corporate governance are disclosure and transparency, fairness, responsibility, accountability, and independency. Corporate governance structures that will be used in this study include board independence, audit committee independence, institutional ownership, board meeting frequency, and audit committee meeting frequency.

Hypotheses Development

Signaling theory can explain the relationship between a financial distress status and non-mandatory information that is disclosed by the firm. By using the list of PN4 companies at the Malaysian Stock Exchange, Nasir and Abdullah (2004) documented that the firm in a distress state will be more enclosed in providing voluntary disclosure and will try to hold its information from the public. The result is consistent with the signaling theory which states that distressed firms will tend to reduce the information regarding the poor management performance in the annual report, as the transparency can debase the firm towards investors. Saputri (2010) also reported a decrease of voluntary disclosure given by highly leveraged firms or firms involved with bad news (distressed firms) compared to the firms with good news. This discussion leads to our first hypothesis:

H1: Financially distressed firms will provide less voluntary disclosure information than the firms which are in a good condition.

Board independence comes from non-affiliated party. Samaha (2010) and Htay et al. (2012) used the agency theory to explain the correlation among independent commissioners against voluntary disclosure and found a positive correlation among them. The findings of Nasir and Abdullah (2004), Akhtaruddin et al. (2009), Samaha (2010), Samaha et al. (2012), and Karagül and Yönet (2012) also documented that the higher level of

supervision by independent commissioners will force firms to reveal more voluntary disclosure information. It is because that there are more independent parties who demand for extensive transparency in the firm's annual reports (Prawinandi et al., 2012). In addition, the regulation of Bursa Efek Indonesia (BEI, 2004) No. Kep-305/BEJ/07-2004 about the minimum proportion on independency of the board of commissioners confirms further the meaning of their presence in given voluntary disclosure. We predict this relation as our second hypothesis:

H2: There is a positive correlation between board of commissioners' independency and the level of voluntary disclosure.

Independent audit committee has an important role related to internal control supervision towards high-quality management. One of their duties is to ensure that the information presented is reliable and is free from fraudulences. Associated with the agency theory, Willekens, Bauwhede, Gaeremynck, and Van de Gucht (2003) and Samaha et al. (2012) unveiled that an audit committee can reduce high agency costs, especially if the majority of committees are independent auditors. Eventually, the control of external auditors upon the manager (agency) can encourage the manager to disclose more information pertaining to the firm, through voluntary disclosure in corporate annual reports, with higher credibility and transparency. In line with this theory, the studies of Ho and Wong (2001; as cited in Saputri, 2010), Willekens et al. (2003), and Natalia and Zulaikha (2012) found a positive relationship between the proportion of independent audit committees and the level of voluntary disclosure. Hence, we further develop the following hypothesis:

H3: There is a positive relationship between the audit committee independence and the level of voluntary disclosure.

The main role of the board of commissioners according to the FCGI (2002; as cited in Waryanto, 2010) is to supervise the providence of the company by management as well as to ensure the implementation of board policies (strategies) and corporate accountability. In the implementation of these duties, boards of commissioners conduct regular meetings to evaluate policies that have been taken by management and overcome the conflicts of interests. Kharis and Suhardjanto (2012) revealed that the more the boards of commissioners meet, the higher the level of voluntary disclosure information they reach.

The audit committee meeting is a means to discuss significant problems that have been previously discussed with the management and to survey the financial reporting accuracy (Sutaryo, Payamta, & Bandi, 2011). The more frequently the audit committees meet to convene, the better the monitoring supervision will be regarding the external audit reporting and quality. The better the supervision is conducted, the more the firm will be able to reduce agency costs through the increased transparency of corporate disclosure. The research result by Putri (2009; as cited in Waryanto, 2010) and Ettredge et al. (2011) successfully documented the significant connection between the meeting intensity of audit committees and disclosure. Furthermore, Ettredge et al. (2011) supported the positive correlation between both variables, i.e., the meeting intensity and corporate disclosure. Therefore, the hypotheses conducted are as follows:

H4: The board meeting frequency has a positive impact on the level of voluntary disclosure.

H5: The audit committee meeting frequency has a positive impact on the level of voluntary disclosure.

Institutional ownership is one of the important components of the corporate governance structures. Karagül and Yönet (2012) and Htay et al. (2012) noted that institutional investors will push the management to do a better disclosure to find out whether the firm's performance is in accordance with its expectations, for example, in terms of profitability and risk management. In other words, the higher proportion of institutional

ownership held by external investors will lead to a higher level of voluntary disclosure conducted by the firm. Matoussi and Chakroun (2008), Akhtaruddin et al. (2009), and Khodadadi et al. (2010) studied the correlation between institutional ownership and the level of voluntary disclosure and found a positive and significant correlation between them. Therefore, our next hypothesis is as follows:

H6: The proportion of institutional ownership has a positive impact on the level of voluntary disclosure.

Research Design and Sample Selection

In this section, we describe our methods of empirical analysis and the sample.

Data and Variable Definitions

We retrieve our accounting data of all the non-financial companies listed for the years of 2009-2011 from the Indonesian Stock Exchange. A firm is classified into distress category if the firm had records with a negative net income for two consecutive years, while their partner, a healthy firm, has total assets in one standard deviation of the total assets of a distressed firm.

Based on the criteria above, we procure 57 distressed firm-years which are available to be analyzed. To meet the matched-pair procedure, we collect other 57 firm-years matched firms as the healthy group. This allows our sample to be as comparable to that of Nasir and Abdullah (2004) as possible. The criteria used for comparison are the firm size and industry. Healthy companies should derive from the same industry, non-financial companies, and have maximum total assets within one standard deviation of the total assets of the financially distressed firms. So, the total number of firm-years obtained is 114.

We apply six independent variables, including the firms' financial distress status and five components of corporate governance structures, such as board independence, audit committee independence, institutional ownership, board meeting frequency, and audit committee meeting frequency; and we use the level of voluntary disclosure as dependent variables. As for control variables, we employ the firm size, leverage, profitability, and nature of audit firms. Table 1 lists the definitions of variables used in the analysis. In addition, we have also listed the components used to determine IPS in Table 2.

Table 1

Variables Definitions and Measurement

Variable	Definition and measurement
IPS	Voluntary disclosure index, calculated as a firm's voluntary disclosure score divided by the total possible score.
DISTRS	Distress is indicated by negative net profit consecutively in two years. It will be measured as a dummy variable, where the value of "1" is for distressed companies and "0" for its healthy ones.
IDKOM	The proportion of independent non-executive directors, which indicates the percentage of independent non-executive directors to total members on the board.
IDKAUD	The proportion of independent audit committees, which indicates the percentage of independent audit committee to total members on the board.
KINS	The institutional ownership represents the percentage of institutional share of ownership to the total shares outstanding of the firm.
IRKOM	The number of board meetings annually.
IRKAUD	The number of audit committee meetings annually.
SIZE	Represents the size of the firms measured in log of total assets.
LEV	Represents the relationship between a firm's total debts to its total assets.
ROA	Represents the firm's profitability. The ratio is calculated as net income divided by total assets.
UKAP	The nature of an audit firm. It is measured as a dummy variable, indicating the value of "1", when the firm is audited by the big four and "0" if otherwise.

Table 2

Voluntary Disclosure Checklist

	Item
1	General corporate information (strategic information): Mission statement Brief history of the firm Financial highlights statement- > 3 years Description of corporate structure Order backlog
2	Information about directors (strategic information): Picture of chairperson only Picture of all directors Academic qualifications of directors Position or office held by executive directors Identification of senior management Functions of senior management
3	Capital market data (financial information): Stock exchanges (code, name) Volume of shares traded (trend) Share price information (trend) Domestic and foreign shareholding Distribution of shareholding by type of shareholders
4	Future prospects (strategic information): General discussion of future industry trends Disclosure of specific external factors, affecting firm prospects (economy, technology, and politics) Discussion of the firm's prospects (general)
5	Social reporting and value-added information (non-financial information): Community programs (health, education) Recruitment problems Discussion of the employees' welfare Corporate policy on employee training Nature of training
6	Capital resources: Current commitments (current capital expenditures) Sources of funds for current commitments Sources of funds for current commitments (trends) Proposed commitments Sources of funds for proposed commitments Time frame for proposed expenditures Debt covenants (potential effect)
7	Liquidity: Working capital (known trends) Working capital (anticipated trends) Current demands and obligations Sources of funds for demands and obligations Changes in the supply of funds (current and projected effects) Liquidity effects of balance sheet items Liquidity effects of operations Liquidity effects of investing and financing Liquidity deficiencies

Note. Source: The combined checklist items in Webb (2002) and Nasir and Abdullah (2004), adjusted with SAK.

Principal Empirical Method: Regression Analysis

We undergo two different analyses, including independent samples *t*-test and the Multiple Linear Regression, to test the proposed hypotheses. Beta coefficient (β) 5% is used to measure the strength of the relationship between two or more variables and also shows the direction of the relationship between the independent and dependent variables (Ghozali, 2006). Definitions of variables can be identified in Table 1.

$$IPS_{it} = \beta_0 + \beta_1 DISTRS_{ij,t} + \beta_2 IDKOM_{ij,t} + \beta_3 IDKAUD_{ij,t} + \beta_4 KINS_{ij,t} + \beta_5 IRKOM_{ij,t} + \beta_6 IRKAUD_{ij,t} + \beta_7 SIZE_{ij,t} + \beta_8 LEV_{ij,t} + \beta_9 ROA_{ij,t} + \beta_{10} UKAP_{ij,t} + \varepsilon_{ij,t} \quad (1)$$

Results and Discussion

Table 3 reports the descriptive statistics for the sample firms. The results from the IPS indicate that the highest score achieved by all firms is 75% and the lowest score is 20% with a standard deviation of 0.129. The statistics on institutional ownership (KINS) indicate that a substantial portion of the firm's shares (66.7%) are held by institutional shareholders. The mean of the proportion of independent board of commissioners (IDKOM) to total members on the board is 42.6%, which indicates that a significant number of boards are independent non-executive directors. Members of the independent audit committee (IDKAUD) comprise around 73.6% of members on the board.

Table 3

Descriptive Statistics

Variable	All firms				Financially distressed				Healthy			
	Min.	Max.	Mean	Std. dev.	Min.	Max.	Mean	Std. dev.	Min.	Max.	Mean	Std. dev.
IPS	0.20	0.75	0.456	0.129	0.20	0.50	0.359	0.07	0.35	0.75	0.552	0.098
IDKOM	0.25	1.00	0.426	0.157	0.25	1.00	0.418	0.133	0.25	1.00	0.432	0.178
IDKAUD	0.25	1.00	0.736	0.303	0.33	1.00	0.672	0.297	0.25	1.00	0.799	0.298
KINS	0.02	1.00	0.667	0.218	0.02	1.00	0.635	0.239	0.26	1.00	0.700	0.191
IRKOM	1.00	34.00	6.63	5.46	1.00	34.00	5.82	5.27	2.00	23.00	7.44	5.57
IRKAUD	2.00	19.00	7.00	4.00	2.00	14.00	7.12	3.88	2.00	19.00	6.88	4.15
SIZE	4.02	7.47	5.99	0.83	4.02	7.41	5.9	0.915	4.78	7.47	6.1	0.729
LEV	0.00	4.59	0.725	0.530	0.00	4.59	0.82	0.669	0.11	2.28	0.633	0.321
ROA	-2.88	1.82	-0.086	0.506	-2.88	0.00	-0.309	0.526	-0.29	1.82	0.137	0.373
UKAP	0.00	1.00	0.377	0.4868	0.00	1.00	0.211	0.411	0.00	1.00	0.544	0.503
Valid *N*	114				57				57			

The average board meeting frequency (IRKOM) is 6.63 with the maximum and minimum meetings of 34.00 and 1.00 respectively, while audit committee meeting frequency (IRKAUD) stands on 7 in average with the maximum and minimum meetings of 19.00 and 2.00 respectively. Table 3 also shows that the mean of financially distressed firms has lower score in almost every variable, besides IRKAUD and LEV compared to non-financially distressed firms.

The independent samples *t*-test is used to determine whether the two samples (two groups) that are not mutually related have a significantly different average value (means). Two different samples, the financially distressed firms and healthy firms, are said to be significantly different if the *p*-value is less than 0.05. Table 4 presents the results of the independent samples *t*-test.

The *t*-test results in Table 4 indicate that the average value of the IPS for the distressed group is 0.359, and as for the healthy group, it stands for 0.552. Through that number, it is clear that the distressed firms have a lower IPS compared to healthy companies. While the *t*-value obtained is -12.123 at the significance level of 0.000. So, it can be concluded that the mean of IPS differs significantly between the distressed companies and the healthy firms.

Table 4

Independent Samples T-test

Variable		Mean	Std. dev.	t-value (p-value)
IPS	Distressed	0.359	0.07	-12.123
	Healthy	0.552	0.098	(0.000)*
IDKOM	Distressed	0.418	0.133	-0.470
	Healthy	0.432	0.178	(0.639)
IDKAUD	Distressed	0.672	0.297	-2.282
	Healthy	0.799	0.298	(0.024)*
KINS	Distressed	0.635	0.239	-1.604
	Healthy	0.700	0.191	(0.111)
IRKOM	Distressed	5.82	5.27	-1.589
	Healthy	7.44	5.57	(0.115)
IRKAUD	Distressed	7.12	3.88	0.327
	Healthy	6.88	4.15	(0.745)

Notes. Distressed = 57 firm-years; Healthy = 57 firm-years; * indicates significance at the level of 5%.

Testing of Hypotheses

The proposed six hypotheses will be tested using the Multiple Linear Regression. Based on the regression results of 10 variables with a significance of 5%, it can be concluded that DISTRS, IDKAUD, IRKAUD, and SIZE variables have a significant effect on IPS, while IDKOM, KINS, IRKOM, LEV, ROA, and UKAP variables have no significant effect on the dependent variable, IPS. The result of the Multiple Linear Regression can be seen in Table 5.

Table 5

Multiple Linear Regression Coefficients

Model 1	Unstandardized coefficient		Standardized coefficient	t	Sig.
	B	Std. error	Beta		
(Constant)	0.261	0.066		3.942	0.000
DISTRS	-0.181	0.017	-0.707	-10.918	0.000
IDKOM	-0.001	0.046	-0.001	-0.021	0.983
IDKAUD	0.069	0.024	0.162	2.808	0.006
KINS	0.035	0.035	0.059	1.000	0.320
IRKOM	-0.001	0.001	-0.038	-0.593	0.555
IRKAUD	0.007	0.002	0.209	3.482	0.001
SIZE	0.030	0.010	0.195	3.142	0.002
LEV	-0.026	0.014	-0.106	-1.804	0.074
ROA	-0.027	0.016	-0.105	-1.649	0.102
UKAP	0.014	0.017	0.054	0.834	0.406

Notes. Dependent variable: IPS. Secondary data were processed.

As shown in Table 5, the final regression model equation obtained is as follows:

$$IPS = 0.261 - 0.181DISTRS - 0.001IDKOM + 0.069IDKAUD + 0.035KINS - 0.001IRKOM \\ +0.007IRKAUD + 0.030SIZE - 0.026LEV - 0.027ROA + 0.014UKAP \quad (2)$$

Testing of H1. Based on the result of the independent samples *t*-test, financially distressed and non-financially distressed firms have been proved to be significantly different in providing voluntary disclosure. It is also supported by the result of multiple regression analysis which unveils that DISTRS negatively affects the level of voluntary disclosure (IPS). It means that if a firm suffers a higher financial distress, it will disclose fewer voluntary information. This result supports signaling theory and the studies of Nasir and Abdullah (2004) and Saputri (2010). Therefore, this study accepts the first hypothesis (H1).

Testing of H2. Based on the result of multiple regression analysis, the independent board variable (IDKOM) does not significantly affect the level of voluntary disclosure (IPS). It is shown in Table 5 that the significance value of IDKOM is 0.983, which is greater than the significance level of 5%. Thus, this study does not support the second hypothesis (H2).

This result indicates that no matter how high the independent proportion of the board is, it does not affect the firm's decision to increase the voluntary disclosure of information provided. This result is also in line with prior studies conducted by Wijaya (2009) and Sánchez et al. (2011). This phenomenon can be explained with the fact that mostly, independent boards are part-time members. It appears remarkably difficult to exhaustively understand the complexity of firm operations, and it is eventually impossible to influence the decision-making process (Waryanto, 2010; Sánchez et al., 2011).

Another reason that could explain this issue is due to the ineffectiveness of selection and appointment of an independent board (Waryanto, 2010). Wijaya (2009) stated that the higher proportion of an independent board without professionalism and real independency will lead to an ineffective performance. It can be concluded that high proportion of independent board in a firm is just a mere formality.

Testing of H3. The result shows that the audit committee independence variable (IDKAUD) significantly affects the level of voluntary disclosure provided by a firm and has a positive coefficient value. It can be seen from Table 5 that the significance value of IDKAUD is 0.006, which is smaller than the significance level of 5%. Thus, this study supports the third hypothesis (H3).

This result is in line with prior studies conducted by Ho and Wong (2001; as cited in Saputri, 2010) and Natalia and Zulaikha (2012). Associated with agency theory, this study supports Willekens et al. (2003) and Samaha et al. (2012) who exposed that the higher proportion of an independent audit committee can lower the agency costs. This happens, because the independent audit committee will improve the quality of information disclosed between the principal and agent, and thus will also improve corporate governance through transparency of information disclosed to the public (Sari et al., 2010). Furthermore, an independent audit committee is able to monitor the management or performance of the firm, thereby it will reduce the opportunity to commit fraud or fraudulent accounting records (Natalia & Zulaikha, 2012).

Testing of H4. Regression results indicate that the board meeting frequency variable (IRKOM) does not significantly affect the level of voluntary disclosure. It is shown in Table 5 that the significance value of IRKOM is 0.555, which is greater than the significance level of 5%. Thus, this study does not support the fourth hypothesis (H4). This result is in line with prior studies conducted by Waryanto (2010) and Primastuti (2012).

This situation can be explained by the fact that a board meeting undertaken is likely to be just a formality to meet the guidelines of KNKG (2006). Furthermore, in some cases, there is a domination of one commissioner or board members who have biased voice which leads to overriding on the firm's behalf (Waryanto, 2010). Muntoro (2006) further explained that a board meeting is a process of shared decision-making. If the participants of a board meeting do not attend it or are not ready (because the meeting was set up on a too short notice), the

process of shared decision-making cannot be made. So in the end, the level of supervision becomes less effective in influencing the level of disclosure as a symbol of accountability to the board.

Testing of H5. Based on the results of the multiple regression analysis, the audit committee meeting frequency variable (IRKAUD) significantly affects the voluntary disclosure provided by firms and it also has a positive coefficient value. It can be seen in Table 5 that IRKAUD has a significant value of 0.001, which is lower than the significance level of 5%. Thus, this study supports the fifth hypothesis (H5).

The result shows that a higher audit committee meeting frequency leads to a higher level of voluntary disclosure. This result is in line with prior studies conducted by Putri (2009; as cited in Waryanto, 2010) and Ettredge et al. (2011). Based on BAPEPAM kep-29/PM/2004, the audit committee has to conduct meetings regularly. Sutaryo et al. (2011) linked the audit committee meeting to the agency theory by explaining that the audit committee meeting is a means to improve the supervision function in order to reduce agency costs between the principal and an agent through the increasing transparency on voluntary disclosure information (non-mandatory) to the users.

Testing of H6. Based on the results, the institutional ownership variable (KINS) does not significantly affect the level of voluntary disclosure. It can be seen in Table 5 that the significance value of KINS is 0.320, which is greater than the significance level of 5%. Thus, this study does not support the sixth hypothesis (H6). This result is in line with prior studies conducted by Sari et al. (2010), Wahyuningtyas and Nugrahanti (2012), and Karagül and Yönet (2012).

According to Sari et al. (2010), one thing that can explain this case is that the institutions, which own corporate shares, have not considered various factors (e.g., social responsibility) as the criteria in consideration of an investment. As a result, the institution investors tend not to demand the firms to reveal more voluntary information.

Conclusions

This study aims to obtain empirical evidence about the influence of corporate financial distress and corporate governance structures, which consist of board independence, audit committee independence, institutional ownership, board meeting frequency, and audit committee meeting frequency, on the extensive level of voluntary disclosure in corporate annual reports. Data are obtained from the annual reports of 114 non-financial firms, which consist of 57 financially distressed firms and 57 non-financially distressed firms listed at the Indonesian Stock Exchange in the period of 2009-2011. Based on the results and discussions, which are previously explained, it can be concluded as follows: (1) The financial distress has a significant negative correlation to the level of voluntary disclosure; (2) The audit committee independence and the audit committee meeting frequency have a significant positive impact on the extensive level of voluntary disclosure; and (3) The board independence, the institutional ownership, and board meeting frequency do not have significant influences on the extensive level of voluntary disclosure in corporate annual reports.

This study has some limitations too, which are: (1) The number of samples is limited, as we only gained 114 firm-years during the three years of research; (2) There is subjectivity in determining the total index score of voluntary disclosures. It occurs because that there is no fixed rule, and the same voluntary disclosure indicator may be interpreted in different ways by every researcher; (3) The use of IPS is limited to the existence of voluntary disclosure items on the checklist; and (4) The period of observation is also limited, that is, only during the period of 2009-2011. Thus, the results of this study cannot be generalized.

Researchers can extend the observation period so that they can generalize more samples, in which the study will become more valid. Besides measuring the IPS on an existing checklist, further research can explore the quality of voluntary disclosure whenever possible. Future studies may add new variables that describe the corporate governance mechanisms, such as the competence of the audit committee.

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Application of International Public Sector Accounting Standards in Vietnam in Current Conditions

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The objective of improving the state accounting system is to build a state accounting system based on a single and complete database which is applied uniformly across all public authorities and agencies from central to local. Such an accounting system must ensure a reliable and smooth flow of information among all the entities that take part in the preparation, allocation, execution, and finalization of the state budget. In order to improve the quality of financial information, to harmonize, and to develop accounting profession globally, the trend of international economic integration requires the standardization of accounting legislative framework among countries and first of all, the harmonization and unification of the preparation, presentation, and disclosure of financial information. Financial statements of each business in the private sector and financial statements of the government in the public sector in different countries should be transparent and presented in accordance with the accounting standards and principles and in line with international practices so that the financial information will be able to be compared and evaluated. Therefore, financial statements of each entity in the public sector and the consolidated financial statements of public sector entities issued by the government in different countries must be prepared and presented in a unified form to suit the international public sector accounting standards. Accordingly, with the application of the interview method in research, the main objective of this article is to focus on searching for the bases and consideration for the application of international public sector accounting standards in Vietnam in current conditions. This article consists of eight sections: (1) what are international public sector accounting standards? (2) accounting entities of the public sector; (3) the limitations of current public sector accounting in Vietnam; (4) financial information to meet the requirements of state management and to comply with international practices; (5) the advantages of applying international public sector accounting standards in Vietnam; (6) the difficulties and challenges of applying international public sector accounting standards in Vietnam; (7) learning experiences from other countries; and (8) conclusion.

Keywords: public sector, international public sector accounting standards, accounting, state budget, governmental organizations

Introduction

In recent years, Vietnam has made a significant progress in completing the legal system in general and the regulations on accounting and auditing in particular, including the regulations to ensure the efficient management of public expenditure and to create a more favorable environment for the operations of the public

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sectors (Kara, 2012). The actual implementation of current legal framework of accounting in public sectors, however, shows the lack of consistency among the accounting system of state budget revenue and expenditure, the accounting of entities financed by the budget (general budget fund), and the accounting of entities financed by financial funds (off-budget funds). Therefore, Vietnam needs a uniform legal framework for the implementation of accounting (Ngo, 2011; T. M. T. Pham, 2011). This is not only the external objective requirement but also the internal requirement of Vietnam's economy itself, because current financial and accounting information in the public sector, through actual implementation, shows inconsistency between the current accounting systems and incompliance with international practices.

Meanwhile, Ijeoma and Oghoghomeh (2014) revealed that international relations formed from the globalization of the world economy, the participation in international and regional economic organizations such as the World Trade Organization (WTO), Vietnam-US bilateral trade agreement, and the commitment to financial organizations such as the Asian Development Bank (ADB), World Bank (WB), International Monetary Fund (IMF), etc. of Vietnam have created the demand for standardized, comparable, and internationally accepted information (Dang, 2008). The state financial management requires publicized and democratized financial information and accounting information which, on the one hand, must be accurate and transparent and, on the other hand, must present the specific characteristics of Vietnam's state budget and financial system. Therefore, the application of international public sector accounting standards in Vietnam in current conditions is derived from requirements of objective reality (Lipman, 2007).

What Are International Public Sector Accounting Standards?

Accounting standards are understood as rules and guidelines on the most general and complete principles, methods of basic accounting procedures, providing the basis for accounting records and financial reporting to achieve an honest, reasonable, and objective assessment of an accounting unit's financial position and operation results. Public sector accounting standards are standards applicable to the public sector (V. K. Pham, 2011).

International public sector accounting standards were issued by the International Federation of Accountants (IFAC) as a basis of the preparation and presentation of financial statements in public sector entities.

Accounting Entities of the Public Sector

Accounting entities of the public sector include state agencies, public service delivery entities, and organizations using state budget from central government to local government and other public service delivery entities and organizations not using state budget (Ha, 2013).

The Limitations of Current Public Sector Accounting in Vietnam

To identify the limitations objectively and effectively, this study applies the interview method by questionnaires which are sent to people working directly with public sector accounting in administrative and public service delivery entities in Ho Chi Minh City (Bui, 2007; Ha, 2007). The survey questionnaires include 80 questions about various aspects of public sector, such as users of public sector accounting information, basis of accounting, accounting model, regulations and guidance on financial report preparation, recording and declaring on financial statements, evaluating and controlling the quality of information on financial statements, preparing and presenting financial statements of public sector entities, etc.. The survey results are shown in Table 1.

Table 1

Survey Results

Survey result	No.
Number of survey questionnaires sent	50
Number of survey questionnaires received	36
Number of valid survey questionnaires set	36

The survey results can be summarized through the following main points:

(1) Target of state budget revenues and expenditures accounting: Although it has reached multiple targets, the target of controlling the observance of regulations about financial management, understanding the revenues and expenditures of state budget that is approved by Vietnamese government within the following fiscal year, and assessing the efficiency of the use of national budget accounts for over 50%;

(2) Requirements of accounting aspects: There are requirements about timeliness, comprehensiveness, continuation, systematism, and accuracy, in which the requirement about accuracy accounts for 95% of total replies;

(3) Generally, the result shows that 87.96% of people doing survey agreed that current state budget accounting regime is easily applied in current conditions; 87.12% agreed that accounting reports are relatively sufficient for users' requirements; and 90.97% agreed that information from financial statements is compliant with the laws. However, most of them stated that managers in public sector entities are not familiar with digital signatures in banking and treasuries' transactions (72.58%) and electronic documents (41.3%);

(4) The result also shows that 72.91% of responses agreed that the recording of transactions related to the budget expenditures is more difficult and complex than the budget revenues in public entities. As a result, the control of information in the accounting work is assessed to be at an average level;

(5) Opinions about legal framework related to the budget law and the current budget process management: 63.38% of responses agreed that the 2002 Vietnamese Law on State Budget should be changed, as many points are unsuitable in current conditions in Vietnam, such as allocation of the budget, types of receipts or disbursements, etc.; 35.62% responses have thought that there are risks in recording under current management; and 39.29% stated that there are certain difficulties. Although these rates are not too high, they show that there are many flaws in decentralizing process and management of budget resulting in fraud. Besides, 17.39% stated that current state budget revenues and expenditures are not effective as required in national policies;

(6) According to the survey, to improve the transparency in budget figures, the interviewee agreed with the following solutions with the rate below:

(a) Applying international standards (42%);

(b) Increasing control in public entities (54%);

(c) Increasing checking and examining budget (87%);

(d) Focusing on the implementation of state audit (58%);

(e) Applying modern information technology (53%).

(7) Opinions about organization of the accounting information system: 80.77% thought that currently applied Treasury and Budget Management Information System (TABMIS) in budget accounting has many advantages. However, 65.89% stated that it is necessary to apply advanced technologies in the world in the near future, as they expect superior characteristics from new technologies as shown in Figure 1;

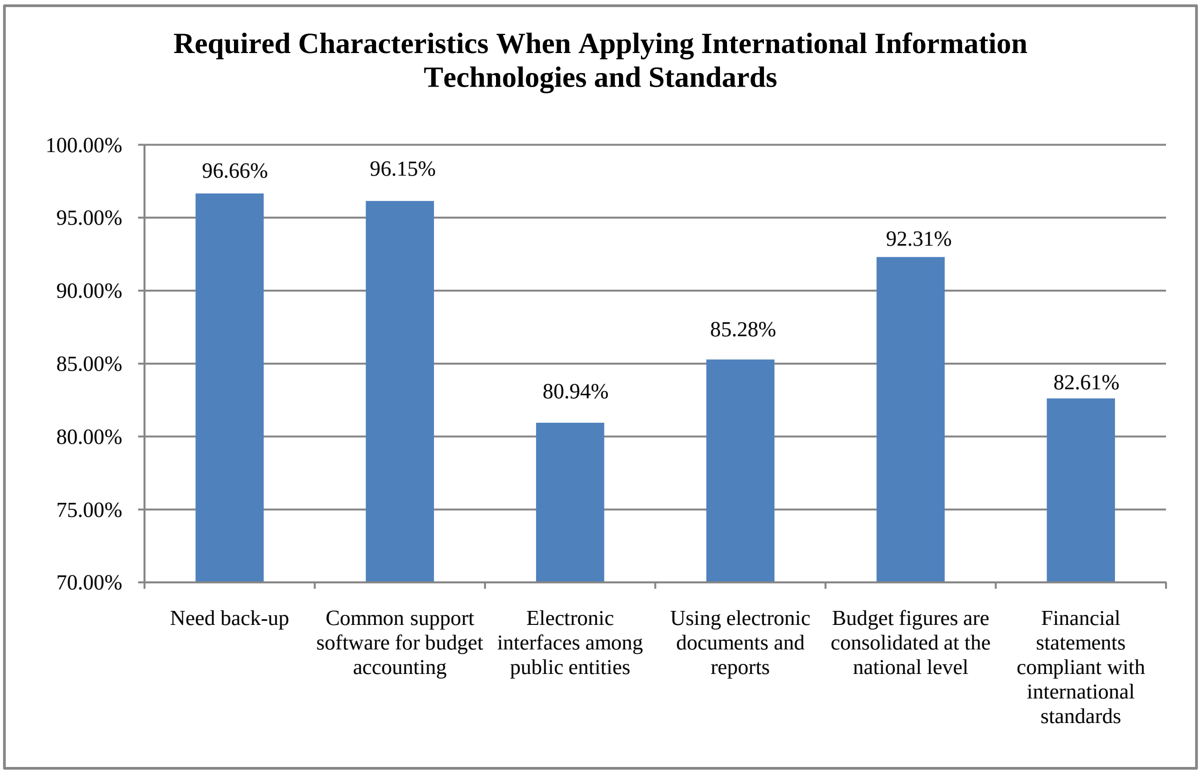

Figure 1. Required characteristics when applying international information technologies and standards.
Source: Based on our survey results.

(8) Among the results collected, regarding quality control of accounting reports, 88.80% showed that public sector information should be controlled commonly by high technology and 90.80% said that internal control systems are seen as an activity to be done to bring clarification in the budget figures. This can be done by an agency of parliament, the state auditor (95.15%), and Vietnam needs a solution to enhance the role and position of this organization in the process of auditing public sector accounting (92.14%);

(9) Regarding the disclosure of figures, 91.47% of the survey interviewees said that Vietnam should follow the international method of budget figure disclosure to help the people in the country to assess the general operation and implementation of the national policies in each year;

(10) Regarding human resources in the public sector, along with the above recommendations, the survey also shows the important roles of the accountants in public entities. State should have training programs for specialized accounting in the public sector (96.32%), along with policies that encourage good working staff in budget accounting positions.

In summary, survey results at a number of entities in Ho Chi Minh City show some limitations of public sector accounting in Vietnam:

(1) Regarding consistency: In fact, in each administrative entities and public service delivery entities, there are different and heterogeneous rules about accounting, in the same type of organizations. It results in difficulties in checking and verifying figures. Also, the accounting information is non-comparable within a region or a country. Since then, synthesis of data for the entire economy will also generate differences or the content cannot be done by a large extent due to the fact that the accounting policies are not uniform;

(2) Budget and financial accounting in communes: Despite the fact that this accounting regime has been amended and modified several times, it still reveals two major limitations. Firstly, budget revenues in communes sometimes are seasonal revenues or revenues in kind and working day. It leads to differences in figures between communes and State Treasury at a time. Secondly, most of people doing accounting in communes are not professional in accounting (Decree 92 providing a number of professional titles in the commune took effect in 2011). Therefore, quality of accounting in communes is not desirable as expected;

(3) Accounting in public service delivery entities: This accounting regime is much closer to the accounting in business entities. However, in the process of recording, there still exist some unclear points, creating difficulties for accountants, such as: how to determine the cost of inventory; income from the business is not clearly reflected; and the simple content of accounts does not reflect all economic transactions arising in the entities;

(4) Accounting of state funds: The accounting regime has also been amended and supplemented several times to suit the Social Insurance Law, the ordinance on the reserves, and other laws; nevertheless, it still has some limitations such as instability of financial management regulations leading to the continuous changes in the accounting policies and accounting. The follow-up of collection of social insurance is very difficult and complex, because the current number of participants of social insurance varies day by day. Therefore, accountants have to adjust the accounting books and reports quarterly;

(5) Regarding management agencies and accounting subjects: Budget revenue and expenditure accounting is implemented by many agencies. Tax authorities and customs record their revenues under their management. State Treasury agencies record revenue and expenditure budget occurred through the treasury. Financial bodies synthesize revenues and expenditures data from various information sources (data from treasury, tax, budget-using entities, subordinate financial agencies, etc.). Each agency has its own purpose, methods, objectives, content of accounting, and norms of revenues and expenditures. This can lead to asynchronism and inconsistency of the overall data of the national economy.

Financial Information to Meet the Requirements of State Management and to Comply With International Practices

Under current regulations, financial statements of each entity in the public sector and the government's consolidated financial statements of entities of the public sector must be prepared and presented uniformly, in compliance with international public sector accounting standards (Achua, 2009).

Current Vietnamese accounting system for administrative entities and public service delivery entities is built on the basis of the State Budget Law, the Law on Accounting, and financial policies applied for business administrative entities (Pham, 2007). It is considered that the financial statements of administrative or non-business entities have met most of the state regulatory requirements. However, some parts in their statements are not in accordance with the laws of the state budget and financial management policies for those entities in Vietnam. However, administrative entities and public service delivery entities' current financial statements are only one component to be combined in the budget settlement reports, serving the budget operation of the National Assembly. They are not yet the financial statements of controlled economic entities for consolidated financial statements by the government, in order to publicize enough information for all citizens so that they are able to check, supervise, and assess the financial capability and performance of the country in each financial year.

The Similarities With the International Accounting Standards

The standards in the set of international public sector accounting standards are built based on the accounting standards in the private sector. These standards are done on an accrual accounting basis and Vietnam is the same with that. On the one hand, Vietnam has implemented a reform in enterprise accounting system and public service delivery entities. Accounting in public service delivery entities is mostly on an accrual basis, except for accounting records of fixed assets and funding sources. On the other hand, Vietnam has built a system of accounting standards for enterprises based on international accounting standards in the private sector. Therefore, the approach of national public sector accounting to international one is relatively close and more convenient in terms of human beings, awareness, legal system, the financial mechanism, etc..

The Differences Between Public Sector Accounting in Vietnam and International Accounting Standards

Subjects of application. Accounting in the state of Vietnam (hereinafter referred to as the state accounting) is applied in: entities having state budget revenues and expenditures, administrative agencies, and public service delivery entities using state budget; public service delivery entities not using state budget; and financial funds of the state. State accounting does not apply to state-owned enterprises and other enterprises of all economic sectors. Meanwhile, the international standards are applicable to: the central government and the regional governments; local government and its subordinate entities; and entities providing public services regularly funded by the state. State is responsible for the assets and debts upon bankruptcy. Public accounting standards do not apply to state-owned enterprises and organizations not regularly funded by the state to maintain continuous operations.

Scope of consolidated financial statements of the government. Vietnamese state accounting has regulations on the state budget settlement reports but has not set the content, forms, and methods of consolidated financial statements of the government. But according to the international public sector accounting, all entities under the control of the government include entities both inside and outside the country; and government agencies which are responsible for the assets and liabilities upon dissolution and bankruptcy are incorporated in the financial statements of government. In addition, the reports for summary and consolidated information of all levels in the governments are unable to perform at the current time.

Application of the accounting basis. Entities in Vietnam are applying different accounting bases. Entities having state budget revenues and expenditures are applying cash basis accounting with adjustments (also tracking advances, receivables, and liabilities). Public service delivery entities are applying accrual basis accounting with adjustments (full recording of receivables, liabilities, and depreciation of fixed assets but not yet included in operating expenses in the accounting period). International public sector accounting clearly differentiates: accounting on a cash basis and accounting on an accrual basis.

Information system. Input accounting information of the Vietnamese state accounting is clearly specified by the government and divided into three categories: national budget, public service delivery, and particular field. But according to international standards, the input forms are prescribed by the professional associations. The output of public sector accounting in Vietnam is only finalization statements for each entity. After submission, the higher level will conduct the process of consolidation within that budget level which is based on guidance of the law. There is no requirement about consolidated financial statements for the entire government. Currently, there is only statistic report for government asset and budget reports to the National Assembly. On the contrary, international public sector accounting standards prescribed two types of reports: the government’s financial statements (consolidated reports of all entities under the control of the government) and the budget reports (as per the requirements of the National Assembly).

The Advantages of Applying International Public Sector Accounting Standards

The advantages of applying international public sector accounting standards are as follows:

(1) Innovation policy and global economic integration were clearly pointed out by the party and the state. Innovative financial mechanisms and policies consistent with international accounting standards and practices are a requirement;

(2) In the process of constructing economic management policies, in general, and accounting policies, in particular, there is always a close direction of state agencies, the Ministry of Finance and the close coordination of the relevant entities;

(3) In Vietnam, although there is no accounting standard in the public sector, the state has also issued many accounting regimes to meet the requirements of management and financial mechanisms for different periods. Although not considered as accounting standards, they are the general principles with which accountants must comply and the financial statements' users share the same understanding. Thus, there is always an accounting regime in Vietnam, with its own rules in accordance with the financial mechanism of the state through each stage;

(4) Accounting regime for administrative entities and public service delivery entities now shares many similarities with the international accounting standards, as the system of international public sector accounting standards is built on the basis of accounting standards in the private sector and on an accrual accounting basis. Vietnam has reformed accounting system for corporate and administrative entities and public service delivery entities. Accounting regime for administrative entities and public service delivery entities is under an accrual basis of accounting, except for fixed assets and subsidized funds;

(5) The budget accounting system and accounting in entities using state budget also have unity and provide open, honest, and transparent financial information;

(6) Vietnam has built a business accounting standards system based on international accounting standards in the private sector, so the application of international public sector accounting standards to the state accounting is relatively familiar and has many advantages such as human beings, awareness, legal system, the financial mechanism, etc.;

(7) The help from international organizations, such as the WB, ADB, and foreign experts, facilitates access to experience of the developed countries.

Thus, it is said that the application of international public sector accounting standards in Vietnam in current conditions is relatively favorable, as the government and the Ministry of Finance in conjunction with the WB have co-deployed a roadmap to build a public sector accounting standards system for Vietnam officially since 2007.

The Difficulties and Challenges of Applying International Public Sector Accounting Standards in Vietnam

The difficulties and challenges of applying international public sector accounting standards in Vietnam are as follows:

(1) The accounting regulations in the public sector have intimate relationships with state budget and financial management mechanism. Economic sectors in the public sector must fully comply with the regulatory requirements prescribed by the State Budget Law and the public financial mechanism;

(2) Due to the nature of the budget management, budget and public financial regulations of Vietnam still have many different characteristics compared to other developed countries. This means that Vietnam has many budget levels, from central government to each province, district, and commune. Commune is both a budget level and a budget estimate level, and this leads to different requirements from international practices in the implementation of the accounting in an entity and combination of information. Besides, the requirements of budget management and financial regulations applied to entities using state budget are quite complex, unlike in other countries, which makes the full application of the international public sector accounting standards in Vietnam unreasonable and difficult to implement;

(3) There are many major differences between accounting in the state of Vietnam and international public sector accounting standards such as legal differences, names, objectives of application, the scope of consolidated financial statements by the government, application of accounting basis, and information systems;

(4) The use of international public sector accounting standards will affect the habits of many classes of accountants and create psychological concerns affecting the development and implementation of international public sector accounting standards.

Learning Experiences From Other Countries

In fact, the international accounting standards have been adopted in a number of countries to different extents, depending on the purposes and specific conditions of each country. This will be described in Table 2. For example, some countries are applying cash basis accounting or adjusted cash basis accounting, while some other countries are applying accrual basis or adjusted accrual basis accounting.

Currently, international accounting standards are applied through one of the following four models:

(1) The first model: Applying 100% of the international public sector accounting standards without amendments and supplements. For accounting standards which cannot be applied, they issued their own national accounting standards;

(2) The second model: Applying 100% of the international public sector accounting standards with notes to add in or remove in each standard;

(3) The third model: Selective application of the provisions of international public sector accounting standards by relying on international accounting standards, then amending, adding, and constructing national public sector accounting standards to suit the characteristics of the economy, together with the issuance of additional national public sector accounting standards;

(4) The fourth model: Not applying international public sector accounting standards, but building and issuing national ones.

Table 2

Level of Application of International Public Sector Accounting

Nation	Application of cash basis accounting	Application of accrual basis accounting	Accrual basic consolidated statement	Budgeting consolidation
England	Not applicable	Applied from 2002	Applied from 2005	Applied from 2002
France	Not applicable	Applied in recent years	Being in process	Be going to change to accrual basis with adjustments
Germany	Cash basis with adjustments	Cash basis statement with supplement of accrual information	Not applicable	Prepare to implement

(Table 2 continued)

Nation	Application of cash basis accounting	Application of accrual basis accounting	Accrual basic consolidated statement	Budgeting consolidation
Austria	Cash basis	Not applicable	Not applicable	Accrual basis with adjustments
Belgium	Cash basis with adjustments	Applied some standards	Not applicable	Accrual basis with adjustments
Czech Republic	Cash basis	Not applicable	Not applicable	Not applicable, but prepare state budget appropriate with European System of National and Regional Accounts (ESA 95)
The Netherlands	Not applicable	Applied from 1994	To be introduced	Some entities applied from 1997; to be introduced to prepare accrual basis consolidated budget fully
Italy	Not applicable	Implemented	Implemented	Implemented
Denmark	Cash basis with adjustments	Applied some standards	Applied some standards	Some standards are being introduced to apply
Finland	Not applicable	Applied from 1998	Applied from 1998	Applied from 1998
Hungary	Cash basis with adjustments	Cash basis statement with supplement of accrual information	Not applicable	Not applicable, but will prepare state budget appropriate with ESA 95
Iceland	Not applicable	Applied from 1992	Applied from 1992	Applied from 1998
Luxembourg	Cash basis	Not applicable	Not applicable	Not applicable, but will prepare state budget appropriate with ESA 95
Ireland	Cash basis with adjustments	Cash basis statement with supplement of accrual information	Not applicable	Accrual basis with adjustments
Norway	Cash basis	Not applicable	Not applicable	Not applicable
Poland	Not applicable	Applied some standards	Applied some Standards	Not applicable, but will prepare state budget appropriate with ESA 95
Portugal	Not applicable	Applied	Not applicable	Not applicable
Slovak Republic	Cash basis	Not applicable	Not applicable	Not applicable, but will prepare state budget appropriate with ESA 95
Spain		Accrual basis with adjustments	Accrual basis with adjustments	Being introduced to prepare state budget according to full accrual basis accounting
Sweden		Applied from 1994	Applied from 1994	Being introduced to prepare state budget according to full accrual basis accounting
Switzerland		Applied	Applied	Being introduced to prepare state budget according to full accrual basis accounting
Turkey	Cash basis	Not applicable	Not applicable	Not applicable
Canada	Not applicable	Applied from 2002	Applied from 2002	Applied
United State of America	Not applicable	Applied from 1998	Applied from 1998	Accrual basis with adjustments
Mexico	Cash basis	Not applicable	Not applicable	Not applicable
Australia	Not applicable	Applied from 1996	Applied from 1997	Applied from 2000
New Zealand	Not applicable	Applied from 1992	Applied from 1992	Applied from 1995
Asia	Applied	Not applicable	Not applicable	Not applicable
Japan	Not applicable	Applied	On-going	Not applicable
Korea	Not applicable	Being introduced	Not applicable	Being introduced

Note. Source: Expert consultants in the public sector accounting of Deloitte, the Netherlands.

Depending on the actual conditions, Vietnam can choose an appropriate one from the above models to apply step by step.

Conclusion

Along with joining the WTO, the current need of integration urgently requires that Vietnam access and apply international public sector accounting standards. This has been recommended by the WB and numerous international experts, especially when Vietnam is constructing the state accounting regime and deploying project TABMIS (Project Decision No. 432/QD, dated April 21, 2003 and approved by the Prime Minister). The application of international public sector accounting standards in Vietnam today will meet the following objectives:

(1) To modernize the management of the state budget planning, budget implementation, and budget reporting and to strengthen the budgeting responsibility of the Ministry of Finance;

(2) To improve the transparency in public accounting;

(3) To limit negatives in the use of budget;

(4) To ensure financial security during the development and integration of a country.

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A Comparative Analysis of Disclosures in Annual Reports*

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Public companies issue periodic annual reports to give information about the past financial and operational results while presenting the future strategies. Companies release non-financial information concerned with corporate sustainability issues like market share, customer loyalty, supply chain management, corporate governance, and human resources in annual reports as well as the audited financial reports. Annual reports, one of the important instruments of transparency and disclosure, are widely used by shareholders and stakeholders. Recent laws and regulations in the US, European Union, and Turkey require enhanced disclosures in annual reports. In the first part of this study, a comparative regulatory framework for annual reports will be established under the Sarbanes Oxley Act (SOX), the Securities and Exchange Commission (SEC) filing requirements, the New Turkish Commercial Code, and regulations of Capital Markets Board (CMB) of Turkey. In the second part of this study, annual reports of four sample companies listed in the New York Stock Exchange (NYSE) and Corporate Governance Index of Borsa Istanbul will be discussed in the light of disclosure requirements of Form 20-F. Findings of this study support the hypothesis which states that regulatory environment has a positive impact on the quantity and quality of disclosures. Attention is drawn to the need for global standardization to reduce the reporting variances and the need for independent audit of annual reports to increase the reliability.

Keywords: annual reports, disclosure requirements, regulations

Introduction

Corporate reporting environment has become dynamic due to the recent changes in global capital markets. The increasing amount of capital flow among markets raises the importance of transparency and disclosure. Therefore, companies and governments are driving for change in corporate reporting practices to attract forward-thinking investors and other decision makers inquiring for relevant and reliable information. After the corporate scandals which occurred in the last decade, the importance of reporting practices in corporate sustainability has been well understood by investors, companies, regulators, professionals, and governments. One of the essential aims of latest regulations (Sarbanes Oxley Act (SOX)) in capital markets and acceptance of International Financial Reporting Standards (IFRS) by many countries is to accomplish corporate sustainability through financial reporting and auditing mechanisms. Recent reporting innovations and compliance requirements stimulate narrative reports like annual reports, corporate social responsibility (CSR), and sustainability reports to complement financial reports.

The aim of this paper is to highlight the importance of annual reports in future corporate reporting model.

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The contribution of this paper for scholars and practitioners is that it provides a comparative analysis of legal environment and practices in annual report filings. Furthermore, the significant impact of a legal environment on the quality and quantity of disclosures will be analyzed.

Future Corporate Reporting Model and Annual Reports

The aim of the new reporting models is to deliver high-quality information to understand the sustainability of a company (PricewaterhouseCoopers [PwC], 2011a). Integrated reporting, one of the recent innovations in corporate reporting, brings to light that among the wide range of factors determining the value of a company, only financial or tangible items are included in financial statements. Intangible assets like human resources, intellectual capital, supplier chain and customer relations, market, and regulatory context, which are of great importance for business continuity, should be revealed in corporate reporting (International Integrated Reporting Committee [IIRC], 2013). Therefore, IIRC (2012) proposed an integrated reporting model including all the following content elements:

(1) Organizational overview and operating context;
(2) Governance;
(3) Opportunities and risks;
(4) Strategy and resource allocation;
(5) Business model;
(6) Performance and outcomes;
(7) Future outlook.

"Integrated reporting is achieved when it shows how governance connects with remuneration and risk, when strategy is designed to exploit a changing market environment, and when strategic priorities align with key resources, relationships, and key performance indicators" (PwC, 2011a, p. 5). The key points of the integrated model and a comparison with the current model is illustrated in Table 1.

Table 1
Future Model for Corporate Reporting

	Current model	Integrated reporting/future model
Focus	Past and financial	Future, connected, and strategic
Timeframe	Short-term	Short-, medium-, and long-term
Detail	Long and complex	Concise and material
Compliance	Rule bound	Responsive to circumstances
Presentation	Paper-based	Technology-based
Trust	Narrow disclosure	Greater transparency
Thinking	Silos	Integrated
Stewardship	Financial capital	All capital (human, intellectual, social, natural, etc.)

Note. Sources: IIRC and PwC (2011a).

Annual reports are one of the important reporting instruments of integrated reporting allowing disclosure for all content elements stated above. Disclosures in annual reports increase the effectiveness of corporate reporting in fulfilling the information needs of the stakeholders and related parties. Companies should adapt their annual reports to the changing reporting environment and deliver the key information effectively to their stakeholders (PwC, 2011b). Historical financial results are valuable indicators about a company's performance.

However, sole financial reports may not be able to satisfy the entire information needs of decision makers. Companies communicate past performance using historical financial and operational results, and they discuss future strategies about business activities, investments, risks, and uncertainties in annual reports. At this point, it is useful to clarify the information needs of the users. The quality of information is more important than the quantity of information. In fact, the length of annual reports is being criticized by both users and financial reporting authorities (Financial Reporting Council [FRC], 2009).

Literature Review

In this part of the paper, recent academic studies about annual reports will be reviewed in brief. Since annual reports cover information about a variety of topics, the research stream explores relations among a number of different variables. Brennan (2001) examined the methodologies used for reporting intellectual capital in 11 knowledge-based Irish listed companies. The results of the study indicate that there are significant differences in market and book values, suggesting that the companies have a substantial level of non-physical, intangible, and intellectual capital assets. Another study about intellectual capital disclosures in annual reports is conducted by Vergauwen and van Alem (2005). The paper finds that voluntary intellectual capital disclosure differs significantly among sample countries and the difference can be explained by country-specific regulation and auditor conservatism.

Beattie, McInnes, and Fearnley (2004) introduced a 4-dimensional framework for the holistic content analysis of accounting narratives supported by a computer-assisted methodology for implementing the framework. Additionally, the paper identifies and suggests observable proxies for some of the attributes of quality, offering an exploratory summary measure of disclosure quality. Li (2008) found that the annual reports of firms with lower earnings are harder to read and firms issuing annual reports that are easier to read have more persistent positive earnings. The study of Linsley and Shrives (2006) explored risk disclosures among annual reports of 79 UK companies using content analysis. Due to their research results, there is a relation between the number of risk disclosures and company size. The results of the content analysis conducted by Llena, Moneva, and Hernandez (2007) on environmental reporting practices in annual reports published by 51 companies in Spain show a significant increase in environmental information compared with the period of 1992-1994.

Legal environments of countries have a significant impact on disclosures in annual reports. There is a gap in the research stream about comparisons of legal environments and reporting practices regarding annual reports of different countries, and this paper aims to fill this gap.

Legal Framework for Disclosures in Annual Reports in Turkey and the US

Regulatory environments have a significant impact on corporate reports (PwC, 2011a). Turkish major regulations about the content of annual reports are communiques issued by Capital Markets Board (CMB) of Turkey and the New Turkish Commercial Code No. 6102. Companies which have more than 250 shareholders or which offer their shares to the public and whose shares are traded at the stock exchange are regulated and supervised by CMB (2011b). As illustrated in Table 2, CMB issued principal communique regarding the minimum content of annual reports. Additionally, there are clauses about the content of annual reports in communiques regarding corporate governance and financial reporting. According to board decision on corporate governance, companies shall disclose in their annual reports corporate governance principles

compliance report. Communique on principles of financial reporting in capital markets includes annual reports in the definition of financial reports.

Table 2

CMB Regulations Regarding the Content of Annual Reports

Title of CMB communique	No. of official gazette	Date
Communique regarding the minimum content of annual reports issued by corporations (CMB, 2012)	28395	28/08/2012
Communique determining the principles and practices of corporate governance (Serial: IV, No: 56, CMB, 2011a)	28158	30/12/2011
Communique on principles of financial reporting in capital markets (CMB, 2013b)	28676	13/06/2013
Board decision on principles of corporate governance (No: 4/88, CMB, 2013a)		01/02/2013

The New Turkish Commercial Code puts into effect financial reporting and auditing standards while providing an effective codex for internal audit, external audit, and corporate governance (PwC, 2011c). According to the new law, the scope of audit includes board of directors' annual reports, disclosures, discussions, and analysis related to financial statements. Auditor will include, in a separate report, the examinations of the company's condition discussed in the annual report in terms of consistency with financial statements, their accuracy, and truthfulness (New Turkish Commercial Code No. 6102, Official Gazette, 2011).

Anglo-American approach to corporate governance requires strong legal protection for minority shareholders. With this concern, the US has a leading position in terms of transparency and disclosure in capital markets. Securities and Exchange Commission (SEC) requires listed companies to prepare their yearly annual reports in accordance with Form 10-K. Foreign private issuers will use Form 20-F for their annual report filings. The disclosure requirements for companies have increased after the acceptance of the SOX by the Congress. The enhanced financial disclosures, which shall be stated in periodic reports, include the following amendments (SOX, 2002):

(1) Disclosures about off-balance sheet transactions and special purpose entities;

(2) Enhanced conflict of interest provisions prohibiting personal loans to executives;

(3) Disclosures of transactions involving management and principal stockholders;

(4) Management assessment of internal controls;

(5) Disclosing code of ethics for senior financial officers;

(6) Disclosure of audit committee financial expert;

(7) Enhanced review of periodic disclosures by issuers.

Analysis

Annual reports are one of the essential instruments of corporate reporting. Due to the narrative structure, companies prepare documents with colorful presentations to attract investors. The quality of disclosures has more value to decision makers than the quantity of disclosures. Therefore, information released in annual reports should be material, accurate, and reliable. In this respect, regulations have a significant on the quality of information presented in corporate reports. So the hypothesis is as follows:

H1: Regulatory environment has a positive impact on the quantity and quality of disclosures.

The aim of the analysis is to draw attention to Turkish regulations regarding the content of annual reports. While doing so, annual report standards of a leading country in transparency and disclosure are used as a

benchmark. In the first part of the analysis, minimum disclosure requirements for annual reports filed in Turkey and the US under current laws and regulations are compared. In the second part of this study, there is a comparison of annual reports of the selected companies.

Comparative Analysis of Regulations for Annual Report Disclosures in Turkey and the US

The regulations about mandatory disclosure requirements regarding annual reports for public companies in Turkey and the US were discussed in Part 4. In this section, Turkish regulations will be compared with SEC standards for annual reports. The results of the comparison are presented in Table 3. In the first two columns of the table, filing requirements for Form 20-F are listed. The third column shows the compliance level of the comparison. In the fourth column, an article-based comparison is made with communique regarding the minimum content of annual reports issued by corporations (CMB, 2012). In the fifth column, an article-based comparison with other regulations is made. The numbers indicate the article numbers of the regulatory document.

There is a fundamental difference between the two countries' regulations. In the US, disclosure requirements for annual reports are stated in one single document which is Form 20-F, whereas there are five different regulatory documents on the content of annual reports in Turkey. The length of Form 20-F is 69 pages. The disclosure requirements are explained in detail. The CMB communique regarding the minimum content of annual reports has a length of five pages.

There are 19 titles and 58 subtitles in Table 3. Analysis covers a comparison of totally 65 items. The results indicate that Turkish regulations are fully compliant with 16 items and partially compliant with 17 items. There is no compliance with 32 items. The narrative results of the comparison are summarized below:

(1) The risk factors are defined in detail like business risk, country risk, etc. in Item 3/D of Form 20-F, whereas there is a general statement for risk factors, without any definition in Turkish regulations;

(2) Item 11 requires enhanced disclosures about market risk. The articles in three different Turkish regulations about disclosures regarding risk factors are too general;

(3) There is no obligation for disclosing corporate governance principles compliance report in Form 20-F. The item related with corporate governance requires information about the country differences in corporate governance practices, if there is any. Disclosures about corporate governance in annual reports have been emphasized by Turkish laws, whereas Form 20-F requires detailed disclosures about performance results, liquidity, and indebtedness;

(4) According to communique on principles of financial reporting in capital markets (CMB, 2013b), financial statements are prepared in accordance with IFRS. A detailed list of financial statements required is not given in any of the Turkish regulations regarding annual reports;

(5) Turkish regulations require disclosures about internal control of corporations. Form 20-F requires additional information on internal control over financial reporting and an attestation report on management's assessment of issuer's internal control over financial reporting;

(6) There are outstanding disclosure requirements regarding accounting and audit profession in Form 20-F which do not exist in Turkish regulations. Companies are obliged to disclose audit committee financial expert and code of ethics for principal financial officer and principal accounting officer. Audit fees, audit-related fees, tax fees, and all other fees paid to principal accountant shall be disclosed in Form 20-F;

(7) Turkish regulations require information about the legal proceedings, court cases against the company, and members of board of directors.

Table 3

Comparison of Disclosure Requirements for Annual Reports in Turkey and the US

Form 20-F in the US	Compliance	Public act regarding annual reports[a]	Other regulatory act
1. Identity of Directors, Senior Management, and Advisers	●	8(1/d)	
2. Offer Statistics and Expected Timetable	o		
3. Key Information			
A. Selected financial data	●	12(1/b)	
B. Capitalization and indebtedness	⊕	12(1/c)	
C. Reasons for the offer and use of proceeds	o		
D. Risk factors	●	5(1)	***8(3); 9(3/c)
4. Information on the Company			
A. History and development of the company	⊕	8(1/a,b,c); 11(a)	***8(2/c)
B. Business overview	⊕		***8(2/b)
C. Organizational structure	●	15(1/a,b)	*2.3.2(h)
D. Property, plants, and equipment	o		
4A. Unresolved Staff Comments	o		
5. Operating and Financial Review and Prospects			
A. Operating results	●	11(1/g); 12(1/a)	*4.6.1
B. Liquidity and capital resources	o		***8(2/ç)
C. Research and development, patents and licenses, etc.	●	10(1)	
D. Trend information	o		
E. Off-balance sheet arrangements	o		
F. Tabular disclosure of contractual obligations	o		
G. Safe harbor	●	5(2)	
6. Directors, Senior Management, and Employees			
A. Directors and senior management	●	8(1/d)	**15; *4.2.2
B. Compensation	●	9(1/a,b)	*4.6.6; **20
C. Board practices	●		*2.3.2(a,b,d); **15,17; ***8(2/a)
D. Employees	⊕	8(1/d)	
E. Share ownership	o		
7. Major Shareholders and Related Party Transactions			
A. Major shareholders	●	8(c,ç)	
B. Related party transactions	●	8(1/e); 11(1/ı)	*2.3.2(j); **16,20; ***8(2/f)
C. Interests of experts and counsel	⊕		*2.3.2(g)
8. Financial Information			
A. Consolidated statements and other financial information	●	4(1,3); 11(d,e); 12(b)	***5, 6, 21; ****397(2)
B. Significant changes	●	14(1)	****397(3)
C. Interests of experts and counsel	⊕		*2.3.2(g)
9. The Offer and Listing			
A. Offer and listing details	o		
B. Plan of distribution	o		
C. Markets	o		
D. Selling shareholders	o		
E. Dilution	o		
F. Expenses of the issue	o		

(Table 3 continued)

Form 20-F in the US	Compliance	Public act regarding annual reports[a]	Other regulatory act
10. Additional Information			
A. Share capital	⊕	8(1/c,ç)	
B. Memorandum and articles of association	⊕		*2.3.2(e); **4,5; ***8(2/d)
C. Material contracts	o		
D. Exchange controls	o		
E. Taxation	o		
F. Dividends and paying agents	●	12(1/c)	*1.6; **6
G. Statement by experts	o		
H. Documents on display	⊕		**8,9
I. Subsidiary information	●	11(c); 15	*****199(3)
11. Quantitative and Qualitative Disclosures About Market Risk	⊕	4(3,5); 5(1,2); 13(1/a,c)	*4.2.4; **18
12. Description of Securities Other Than Equity Securities			
A. Debt securities	o		
B. Warrants and rights	o		
C. Other securities	o		
D. American depositary shares	o		
13. Defaults, Dividend Arrearages, and Delinquencies	o		
14. Material Modifications to the Rights of Security Holders and Use of Proceeds	o		
15. Controls and Procedures			
(a) Disclosure controls and procedures	⊕		***9(4)
(b) Management's annual report on internal control over financial reporting	⊕	4(4); 11(1/b); 15(1/c);	*4.2.4; **18, ***9(4)
(c) Attestation report of the registered public accounting firm	⊕		****397(1); 398(1); 401(1,3); 402(2)
(d) Changes in internal control over financial reporting	⊕		****397(3)
16. Reserved			
A. Audit committee financial expert	⊕		*4.3.7(e)
B. Code of ethics	⊕		**14
C. Principal accountant fees and services	o		
D. Exemptions from the listing standards for audit committees	o		
E. Purchases of equity securities by issuer and affiliated purchasers	⊕	11(1/ç)	
F. Change in registrant's certifying accountant	o		
G. Corporate governance	o		
H. Mine safety disclosure	o		
17. Financial Statements	⊕		***5, 6, 21(3)
18. Financial Statements	NA		
19. Exhibits	⊕	14(2)	

Notes. [a]: Based on CMB (2012). o: There is not any compliant disclosure requirement in Turkish regulations regarding annual reports. ⊕: There is partially compliant disclosure requirement in Turkish regulations regarding annual reports. ●: There is a full compliant disclosure requirement in Turkish regulations regarding annual reports. *: Communique determining the principles and practices of corporate governance (Serial: IV, No: 56) (CMB, 2011a). **: Board decision on principles of corporate governance (No: 4/88) (CMB, 2013a). ***: Communique on principles of financial reporting in capital markets (CMB, 2013b). ****: The New Turkish Commercial Code No. 6102.

Comparative Analysis of Public Companies' Annual Report Disclosure Practices

The second part of the analysis covers a comparison of the disclosure practices of the selected companies. The results of the comparison of disclosure practices in Annual Reports for 2012 are presented in Table 4. The selected four companies have distinctive features. Royal Dutch Shell has a leading position in Global Fortune 500 list in 2013. Turkcell is the only Turkish company listed in Borsa Istanbul and the New York Stock Exchange (NYSE). Doğan Yayın Holding has the highest rating of transparency and disclosure among other listed companies in corporate governance index in 2012.

The purpose of the analysis is to draw attention to the significant impact of a regulatory environment on annual report practices. Shell and Turkcell use Form 20-F in the US capital markets. Turkcell (Turkey) and Doğan Yayın Holding are issuing annual reports under Turkish regulations. The findings presented in Table 4 show the differences between companies filing under US regulations and Turkish regulations. Turkcell, a listed company both in the US and in Turkey, is disclosing fewer amount of information in the annual report issued in Turkey. The quantity and quality of disclosures in annual reports are significantly higher for companies using Form 20-F. So, the findings support H1, namely, regulatory environment has a positive impact on the quantity and quality of disclosures.

Table 4

Comparison of Annual Reports of the Selected Companies

Form 20-F in the US	Shell Form 20-F[a]	Turkcell Form 20-F[b]	Turkcell (Turkey) annual report[c]	Doğan Yayın Holding annual report[d]
1. Identity of Directors, Senior Management, and Advisers	o	o	●	●
2. Offer Statistics and Expected Timetable	o	o	o	o
3. Key Information				
A. Selected financial data	●	●	●	●
B. Capitalization and indebtedness	●	o	⊕	⊕
C. Reasons for the offer and use of proceeds	o	o	o	o
D. Risk factors	●	●	●	●
4. Information on the Company				
A. History and development of the company	●	●	⊕	⊕
B. Business overview	●	●	⊕	⊕
C. Organizational structure	●	●	●	●
D. Property, plants, and equipment	●	●	●	●
4A. Unresolved Staff Comments	o	o	o	o
5. Operating and Financial Review and Prospects				
A. Operating results	●	●	⊕	⊕
B. Liquidity and capital resources	●	●	⊕	⊕
C. Research and development, patents and licenses, etc.	●	●	●	⊕
D. Trend information	●	●	⊕	o
E. Off-balance sheet arrangements	●	●	o	⊕
F. Tabular disclosure of contractual obligations	●	●	o	⊕
G. Safe harbor	●	o	o	o
6. Directors, Senior Management, and Employees				
A. Directors and senior management	●	●	●	●
B. Compensation	●	●	⊕	⊕
C. Board practices	●	●	●	●

(Table 4 continued)

Form 20-F in the US	Shell Form 20-F[a]	Turkcell Form 20-F[b]	Turkcell (Turkey) annual report[c]	Doğan Yayın Holding annual report[d]
6. Directors, Senior Management, and Employees				
D. Employees	●	●	⊕	⊕
E. Share ownership	●	⊕	⊕	⊕
7. Major Shareholders and Related Party Transactions				
A. Major shareholders	●	●	⊕	●
B. Related party transactions	●	●	●	●
C. Interests of experts and counsel	o	o	o	o
8. Financial Information				
A. Consolidated statements and other financial information	●	●	●	●
B. Significant changes	●	o	o	o
C. Interests of experts and counsel	o	o	o	o
9. The Offer and Listing				
A. Offer and listing details	●	●	⊕	⊕
B. Plan of distribution	o	o	o	o
C. Markets	●	⊕	⊕	⊕
D. Selling shareholders	o	o	o	o
E. Dilution	o	o	o	o
F. Expenses of the issue	o	o	o	o
10. Additional Information				
A. Share capital	●	o	⊕	⊕
B. Memorandum and articles of association	●	●	⊕	⊕
C. Material contracts	●	●	●	●
D. Exchange controls	●	●	o	●
E. Taxation	●	●	o	●
F. Dividends and paying agents	●	o	⊕	⊕
G. Statement by experts	o	o	o	o
H. Documents on display	●	●	⊕	⊕
I. Subsidiary information	o	o	●	●
11. Quantitative and Qualitative Disclosures About Market Risk	●	●	⊕	⊕
12. Description of Securities Other Than Equity Securities	●	●	⊕	⊕
A. Debt securities	o	o	o	o
B. Warrants and rights	o	o	o	o
C. Other securities	o	o	o	o
D. American depositary shares	o	o	o	o
13. Defaults, Dividend Arrearages, and Delinquencies	o	●	●	o
14. Material Modifications to the Rights of Security Holders and Use of Proceeds	o	o	o	o
15. Controls and Procedures	●	●	⊕	⊕
(a) Disclosure controls and procedures	●	●	⊕	⊕
(b) Management's annual report on internal control over financial reporting	●	●	o	o
(c) Attestation report of the registered public accounting firm	●	●	o	o
(d) Changes in internal control over financial reporting		o	o	o

(Table 4 continued)

Form 20-F in the US	Shell Form 20-F[a]	Turkcell Form 20-F[b]	Turkcell (Turkey) annual report[c]	Doğan Yayın Holding annual report[d]
16. Reserved				
A. Audit committee financial expert	●	●	o	o
B. Code of ethics	●	●	⊕	⊕
C. Principal accountant fees and services	●	●	o	o
D. Exemptions from the listing standards for audit committees	●	o	o	o
E. Purchases of equity securities by issuer and affiliated purchasers	●	●	o	●
F. Change in registrant's certifying accountant	o	o	o	o
G. Corporate governance	●	●	●	●
H. Mine safety disclosure	o	o	o	o
17. Financial Statements	o	o	o	o
18. Financial Statements	●	●	●	●
19. Exhibits	●	●	o	o

Notes. [a]: Based on Shell Form 20-F (Shell Global, 2013). [b]: Based on Turkcell Form 20-F (Turkcell, 2013a). [c]: Based on Turkcell annual report (Turkcell, 2013b). [d]: Based on Doğan Yayın Holding annual report (Doğan Yayın Holding, 2013). o: The annual report of the company has no disclosures compliant with Form 20 requirement. ⊕: The annual report of the company has partially compliant disclosures with Form 20 requirement. ●: The annual report of the company has full compliant disclosures with Form 20 requirement.

Conclusion

Annual reports are providing a variety of integrated information about past performance results, future strategies, and intangible values of a company including information about uncertainties and risks. Thus, annual reports are an important instrument for future corporate reporting model regarding the sustainability of companies. Decision makers are seeking for material, reliable, and relevant information. The quality of disclosures is more valuable than the volume of disclosures. Therefore, companies should remove clutter-immaterial, duplicate information from annual reports (PwC, 2011b). A number of studies have been conducted regarding annual reports. However, few studies are conducted considering cross-country analysis. This paper provides a comparative analysis of legal environment for annual report disclosure requirements of companies listed in the US and Turkish capital markets for practitioners, companies, and regulators. The results of the study indicate that the communique regarding the minimum content of annual reports in Turkey (CMB, 2012) should be revised due to the changes in the dynamic environment of corporate reporting. Further, a comparative analysis of annual report practices is presented. The findings in the second part of the analysis support the hypothesis that regulatory environment has a positive impact on the quantity and quality of disclosures.

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Effects of Mandatory Audit Firm Rotation Upon Quality of Audit: The Perception of Audit Firms—Evidence From Bahrain

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The objectives of this study are: (1) to explore current audit appointment practices by audit firms in Bahrain; (2) to look into the opinions of audit firms in Bahrain on potential effects provided by implementing mandatory audit firm rotation (audit quality); and (3) to investigate audit firms' views in implementing mandatory audit firm rotation in Bahrain. To achieve these objectives, a questionnaire was developed and distributed to respondents that consist of all auditors working in audit firms in Bahrain. The findings indicated that there is a significant relationship between mandatory audit firm rotation and quality of audit. The study also indicated that longer partner tenure makes the auditor's performance lack the quality in the auditing process. The average mean for all questions of the hypothesis together is 2.73 with average standard deviation of 0.94 which is less than half of the mean. This means that there is no dispersion among respondents about the questions of the hypothesis. Also, the analysis shows that the t-value is 29.922, which is greater than the table critical value of t (1.66), and the p-value obtained is 0.000 which is less than the value of significance at $p < 0.05$. These results confirm statistically that there is a significant relationship, so the null hypothesis is rejected and the alternative hypothesis is accepted.

Keywords: mandatory audit rotation (MAR), audit quality, partner tenure, Bahrain, Central Bank of Bahrain (CBB), Gulf Cooperation Council (GCC) countries

Introduction

The concept of mandatory audit rotation (MAR) is not new. There has been considerable interest in MAR as a means of reducing the incidence of audit failure, improving the quality of audit, and protecting investors and other users of financial statements. Mandatory audit firm rotation sets a limit on the number of years a public accounting firm may audit a company's financial statements. After a predetermined period, an accounting firm is no longer eligible to serve as the company's auditor for a set time interval and a rotation of firms is required. An MAR rule, which sets a limit on the maximum number of years an audit firm can audit a given company's financial statements, has been proposed as a means to preserve audit quality as possibly to increase investors' confidence in financial reports.

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In the US, the Government Accounting Office (GAO), which was delegated by the Securities and Exchange Commission (SEC) to study the issue of MAR, concluded that there is no clear evidence regarding the potential benefits of an MAR rule (GAO, 2008). However, more recently, the Public Company Accounting Oversight Board (PCAOB, 2011) issued a concept release in which the board solicits public comments on the advantages and disadvantages of mandatory audit firm rotation. Horwath (2012) pointed out that 94% of the comment letters received by the PCAOB were against rotation.

The auditor will not be burdened from pleasing the client's management and at the same time will reduce the auditor's concern over losing the client. Mandatory audit firm rotation would require the clients to replace their external auditors at a certain time, usually after a few years. Section 207 (c) of Sarbanes-Oxley Act (SOX) defined the term "mandatory rotation" as the imposition of a limit on the period of years in which a particular registered public accounting firm may be the auditor of record for a particular issuer. SOX's reforms directly related to auditors include the establishment of the PCAOB, increased audit committee responsibilities, and mandatory rotation of lead and reviewing audit partners after five consecutive years on an engagement (Arel, Brody, & Pany, 2005). Breeden (2012) believed that companies should re-propose their audit engagement at least once every five or six years.

Several prior studies have attempted to draw conclusions of MAR in terms of audit quality. The majority of the published empirical papers are based on settings where mandatory rotation is not in place, with few exceptions which are characterized by some relevant limitations (Ruiz-Barbadillo, Gomez-Aguilar, & Carrera, 2009; Kim & Yi, 2009; Firth, Rui, & Wu, 2012). In December 2011, the American Institute of Certified Public Accountants (AICPA) issued a comment letter that the PCAOB refrains from imposing MAR. The AICPA letter supported the PCAOB's goals for enhancing auditor independence, objectivity, and professional skepticism. The AICPA cited research indicating that auditor rotation may hurt audit quality and that audit quality increases with audit firm tenure.

Whether audit firm rotation should be made mandatory is an issue that has been debated for almost five decades in the US and around the world (Kwon, Lim, & Simnett, 2010).

Proponents of mandatory audit firm rotation have argued that a new auditor would bring to bear greater skepticism and a fresh perspective that may be lacking in long-standing auditor-client relationships.

It is suggested in the literature that a policy of MAR could undermine accretion of expertise and impair audit quality. The relationship between audit tenure and audit quality remains controversial. Many believe that the longer the audit tenure, the lower the audit quality (negative correlation) due to the closer relationship between auditors and management (Catanach & Walker, 1999; Vanstraelen, 2000). This closer relationship creates more flexibility for the management to produce financial statements in the auditor's favor (Davis, Soo, & Trompeter, 2002), while others believe that the longer the audit tenure, the higher the audit quality (positive correlation) (Geiger & Raghunandan, 2002).

According to PricewaterhouseCoopers (PwC, 2012), MAR will reduce audit and financial reporting quality. Mandatory audit firm rotation would diminish audit quality, make financial reporting less reliable, and add cost for investors. Ernst & Young (2013) believed that mandatory audit firm rotation has not proven to enhance audit quality; indeed, some studies have shown that it may adversely affect audit quality especially where there are shorter rotation periods (Cameran, Prencipe, & Trombetta, 2013).

Burton and Roberts (1967) suggested that personal relationship between auditor and management, the combination of auditing and consulting, as well as the auditor's goal of maintaining the assignment are

determining factors towards reducing audit quality.

Deis and Giroux (1996) reviewed audit quality letters produced by a public agency and concluded that audit quality declines as audit tenure increases.

However, others believe that through audit firm tenure, the auditor attains a significant knowledge and understanding of a company over time, as well as an awareness of its risks, all of which can enhance audit quality. Longer tenure can allow the audit firm to develop experience and credibility with the entity by demonstrating, over time, its technical accounting expertise, the quality of its audit, work, and its knowledge of the company’s business.

However, despite concerns that mandatory rotation could diminish the quality of financial reporting, the demand for mandatory audit firm rotation has remained.

Thus, based on the above discussions, the problem statement of the study can be highlighted from the point that the audit function is to provide reliable financial information to the interested users such as shareholders, creditors, lending institutions, and others for decision-making. The users must be confident in relying on the financial information. However, a number of recent corporate reporting failures, such as Enron and WorldCom, have raised concerns over the credibility of financial information.

To the best of our knowledge, this is the first exploratory survey conducted in Bahrain regarding the current audit appointment practices by audit firms in Bahrain and evaluating their perceptions of the potential effects provided by implementing mandatory audit firm rotation requirement. It is hoped that this study will provide some viewpoints of the interested parties in determining whether audit firm rotation should be mandated in Bahrain, and its effects upon audit quality, and to contribute to the international debate about the requirement that some companies have to rotate their independent auditors periodically.

In the light of the above discussion, the current study aimed to explore whether mandatory audit firm rotation should be implemented in Bahrain considering that some countries have had good experiences such as Italy. This study investigated the potential effects of such a requirement on the related party “audit firms” in Bahrain.

Specifically, the objectives of this study are:

(1) To explore current audit appointment practices by audit firms in Bahrain;

(2) To look into the opinions of auditing firms in Bahrain on potential effects provided by implementing mandatory audit firm rotation (audit quality);

(3) To investigate their views in implementing mandatory audit firm rotation in Bahrain.

By attaining such objectives, the current study is expected to contribute to the literature in the following issues:

(1) To fill the gap in the existing economics of auditing literature, since there are little published research papers directly testing mandatory audit firm rotation in developing countries and specifically Gulf Cooperation Council (GCC) countries such as Bahrain;

(2) To the best of our knowledge, it is the first study that explicitly examines the impact of mandatory audit firm rotation upon audit quality in Bahrain;

(3) This study is expected to have useful implications for regulators, members of the accounting profession, and users of financial statements as a contribution to prior research, and this study investigates two main hypotheses to support or refute prior findings regarding mandatory audit firm.

The remainder of this study is organized as follows: Section 2 provides the controversy and literature review about mandatory audit firm rotation; Section 3 deals with the Bahrain auditing environment; Section 4 presents methodology (data collection, population of the study, and hypotheses testing); Section 5 presents the statistical analysis and findings of this study; and Section 6 highlights the conclusions and recommendations.

Controversy and Literature Review

Many studies have been conducted in the area of mandatory audit firm rotation (Mautz & Sharaf, 1961; Pierre & Anderson, 1984; Dopuch, King, & Schwartz, 2001; Gietzman & Sen, 2002; Davis et al., 2002; Geiger & Raghunandan, 2002; Carcello & Nagy, 2004; Kaplan, 2004; Arel et al., 2005; Chi, Huang, Liao, & Xie, 2005; Gavious, 2007; Wibowo & Rossieta, 2009).

According to previous studies, there are two conflicting arguments about the relationship between audit tenure and audit quality. The first argument states that the period of audit engagement is negatively related to the audit quality. This is due to the closer relationship between auditor and client as the audit period is longer. This closer relationship causes the auditor and the client to have a chance to compromise amounting and reporting method. This decreases the audit quality. The second argument states that the period of audit engagement is positively related to the audit quality. The longer the tenure, the better the audit quality. Regulators have suggested a link between auditor tenure and reductions in earnings quality and recommended imposing such a requirement (Commission on Auditors' Responsibilities, 1978; Division for CPA firms, 1992). The positive audit-client relationship is due to several reasons as follows: (1) There are more audit failures and lawsuits in the early years of audit engagement. The major financial reporting failures at Enron and WorldCom as well as apparent failures at Quest, Tyco, Adelphia, and others led to the financial reporting reforms contained in the SOX of 2002. Many of the audit failures and legal issues occur in the early years of audit engagement, and thus, the longer the tenure, the better the audit quality (Pierre & Anderson, 1984). The analysis of Geiger and Raghunandan (2002) showed that most audit failures occur in the early years of audit engagement, and thus, longer audit tenure will improve the audit quality. Carcello and Nagy (2004) proposed that the probability of fraudulent financial reporting is the highest early in the audit firm's tenure and is not substantially higher for instances of long-standing audit engagement; and (2) Audit rotation causes audit risk, below standard audit implementation, because an auditor has not comprehensively understood his/her clients (Beatty, 1989; Craswell, Francis, & Taylor, 1995).

The audit quality is the combination between the auditor's competence and independence (DeAngelo, 1981). The relationship between the auditor's competency and tenure is predicted to be positively related. The longer the tenure, the higher the auditor's competency as the auditor gets a better understanding of the firm's internal control, accounting information system, and specific risks.

However, other views were adopted, in which auditing profession has argued that mandatory audit firm rotation would not only decrease audit quality but also reduce auditor's incentives to invest in specific industries, destroy the knowledge of client companies that an audit firm usually accumulates over the period of years, distort the competition in the market, and increase the cost of an audit (AICPA, 1992).

GAO's (2003) study concluded that mandatory audit firm rotation may not be the most efficient way to improve audit quality.

It appears from the literature that politicians, regulators, analysts, and small audit firms favor mandatory audit firm rotation as a solution to the perceived lack of objectivity and independence of auditors, whereas

academicians, companies, and large audit firms tend to be against mandatory audit firm rotation, because changing auditors is costly (Kwon et al., 2010).

According to the literature review and based on the above discussion, the arguments in favor of mandatory audit firm rotation can be summarized as follows:

(1) If auditors continue to audit the entity for too long, they risk developing too close a relationship with the client;

(2) Periodically having a new auditor would bring a fresh look to the public company's financial reporting and help the auditor appropriately deal with financial reporting issues, because the auditor's tenure would be limited under MAR;

(3) Mandatory audit firm rotation would help in the more even development of the auditing profession, helping smaller and medium-sized audit firms to grow.

The arguments against mandatory audit firm rotation can be summarized as follows:

(1) New auditors may miss problems in the period under review, because they lack adequate experience with the client to notice either unusual events or important changes in the client's environment;

(2) There are not enough large audit firms to address the audit requirements of large companies, making auditor rotation impracticable at the ground level;

(3) Mandatory rotation increases the risk of audit failure, because the incoming auditor places increased reliance on the client's estimates and the representations in the initial years of the engagement. Thus, there may be negative effects on audit quality and effectiveness in the first years following a change;

(4) The rotation would only prevent auditors from building an in-depth institutional knowledge of a client and its business.

Without empirical evidence, it is neither clear whether mandatory rotation would really ensure audit quality by strengthening auditor independence nor obvious whether the rotation rule would hamper audit quality because of an insufficient knowledge of clients. Therefore, any generalization of such findings to a regime with MAR should be implemented with caution.

Because this study aims to examine the effects of mandatory audit firm rotation upon audit quality, we will consider the previous studies about audit quality.

MAR and Audit Quality

Audit quality is an important feature to consider in evaluating the usefulness of the rotation rule. The quality of audit can be defined as the probability that an auditor will both discover and truthfully report material errors, misrepresentations, or omissions detected in a client's accounting system (DeAngelo, 1981). The quality of audit work can be evaluated from several points of view. The main factors that can be considered in evaluating the audit quality are as follows (Cameran, Vincenzo, & Merlotti, 2005):

(1) Performance determinants: They relate to the ability of auditors, intended both as knowledge (training, education) and experience (professional, industry, and client-specific);

(2) Economic incentives: As the audit firm's performance is affected by economic considerations (i.e., fees, costs, profits), these incentives have to be evaluated when both detection and reporting of matters are analyzed;

(3) Audit market structure: The auditor's performance is influenced by the state of professional ethics and the visibility of the profession's enforcement actions.

The proponents of MAR consider it as a way to improve audit quality, because the familiarity with the client has the effect of reducing the fresh point of view that auditors have in the first years of the engagement. The rotation can lead the market to completion based on the quality of services which can lead to a growth in the number of competent firms. Gates, Lowe, and Reckers (2007) argued that auditor rotation increases investors' confidence in the quality of financial accounting in a regulatory environment with increased corporate governance producers. Also, Carey and Simnett (2006) proved that the auditing quality decreases with increasing duration of the assignment and increases with internal rotation. According to the opponents of mandatory rotation, these benefits are largely unproven and they cannot balance the costs and risks of it. Ernst & Young (2013) and PwC (2012) opposed mandatory firm rotation. They believed that mandatory firm rotation is not an effective way to enhance audit quality. Geiger and Raghunandan (2002) added that long auditor tenure is not associated with a decline in audit quality but that short tenure is associated with lower quality audit.

The following are some of the previous studies about audit quality.

Copley and Doucet (1993) conducted a study to investigate the relationship between the quality of audit services and auditor tenure, along with the quality/fixed fees relation. The empirical results show a positive sign for the estimated parameter of "tenure". This means that the longer the period of engagement, the higher the risk that the quality of audit services decreases. The authors concluded that a periodic rotation of auditors may improve the audit quality.

Vanstraelen (2000) focused, in his study, on the audit-client relationship and the quality of audit in practice. The results showed that companies receiving a clean audit report have a significantly longer relationship with the auditors than companies that receive an unclean report. So, a long tenure reduces the likelihood that the auditor issues a qualified report.

Johnson, Khurana, and Reynolds (2002) investigated, in their study, whether audit firm tenure is associated with financial reporting quality. They examined the properties of accruals for an industry and size-matched sample of big 6 clients that have been audited by the same firm for two to three years (short tenure), four to eight years (medium tenure), or nine or more years (long tenure). The results showed that relative to medium audit firm tenures of four to eight years, short audit firm tenures of two to three years are associated with lower quality financial reporting. There was no evidence of reduced financial reporting quality for longer audit firm tenures of nine or more years.

J. N. Myers, L. A. Myers, and Omer (2003) investigated the relationship between audit tenure and audit quality. The authors used discretionary accruals and current accruals as proxy variables for audit quality. The authors found that extended auditor tenure had a beneficial effect on the dispersion of accruals. The results suggest that audit quality does not appear to deteriorate with tenure.

Carcello and Nagy (2004) examined the relationship between audit quality and mandatory rotation from the point of view of fraudulent financial reporting. The authors found a significant positive relationship between short auditor tenure and the number of fraudulent financial reports, but they did not discover a significant positive relationship between long auditor tenure and fraud. As fraud is more likely to occur in the first years of the auditor-client relationship, mandatory rotation can have negative effects on audit quality. Therefore, fraudulent management can be perceived and reduced, and the audit quality improves.

Fitriany, Utam, Martani, and Rossieta (2009) found that tenure is significantly and negatively related to the discretionary accruals. In the first year of audit engagement, the audit quality is still low due to fact that the

auditor has not comprehensively understood the client's situation. The longer the tenure (second or third year), the audit quality increases.

Fitriany et al. (2009) conducted a study to investigate whether the audit firm rotation regulation is required to increase audit quality because at present, many countries no longer apply the audit firm rotation. The study also examined whether the audit tenure and specialization affect the audit quality. The results of the study revealed that audit firm tenure at pre-regulation is negatively related to audit quality, but at post-regulation convexly related to the audit quality (going down until 10 years and then going up). Audit firm rotation at the pre-regulation will decrease the audit quality, but after regulation does not affect the audit quality. At pre- and post-regulation periods, audit partner rotation positively affects the audit quality. The study concluded that the rotation regulation has not made any impact on audit quality. These results indicate that audit firm rotation does not improve audit quality, so it should be stopped, while audit tenure rotation is still needed.

Harris (2012) conducted a study to investigate whether MAR rules are associated with changes in the quality of audit markets. The study also investigated the debonding effect of an MAR policy (i.e., debonding is goal of rotation rules in an effort to enhance auditor independence in audit markets). The study found that in the sample period after adoption of MAR rules, the data show evidence of less earnings management, less managing to earnings targets, and more timely loss recognition compared to the sample before adopting MAR rules. The study concluded that the quality of audit markets appears to improve, on average, since the enactment of MAR rules. The results highlight the importance of considering ways to mitigate the erosion of audit quality when making the transition to new auditors under MAR rules. The study suggested ways that include the use of detailed handover files between predecessor and successor audit firms or "four-eyes principle" (two-auditor involvement) in years of initial audits.

Siregar, Amarullah, Wibowo, and Anggraita (2012) pointed out, in their study, that the Indonesian regulators have made it compulsory to rotate the appointment of the public accountants every three years and the appointment of public accounting firms every five years, since the end of 2003. The study aimed to investigate the effects of auditor rotation and auditor tenure of the public accountants and the public accounting firms, on audit quality (before and after the implementation of the mandatory auditor regulation). The results do not support that the MAR increases audit quality or that shorter audit tenure increases audit quality. They recommended that regulators may need to consider revising the regulation or introduce other regulations to increase audit quality.

Cameran et al. (2013) pointed out, in their study, that auditors are appointed in Italy for a 3-year period and their term can be renewed twice up to a maximum of nine years. They added that since the auditor has incentives to be reappointed at the end of the first and the second 3-year periods, audit quality is expected to be higher in the third (i.e., the last) term compared to the previous two. The study revealed that the auditor becomes more conservative in the last 3-year period, i.e., the one preceding the mandatory rotation. In an additional analysis, the researchers use earnings response coefficient as a proxy for investors' perceptions of audit quality, and the results were consistent with an increase in audit quality perception in the last engagement period.

In summary, so far, the extant literature, although very broad, was unable to provide direct and univocal empirical evidence in support of or against the introduction of an MAR rule. There is a clear need to research this issue further in settings where the MAR rule is already in place and where the actual incentives of the auditor become more evident. Thus, our paper aims at partially filling this gap.

The Bahrain Auditing Environment

Auditors and Accounting Standards Module was first issued in October 2010 under powers given to the Central Bank of Bahrain (CBB). Specialized licensees must ensure that the audit partner responsible for further audit does not undertake that function more than five years in succession. For purpose of Paragraph AA-1.3.1, the first 5-year period referred to is for period ending December 31, 2010. Specialized licensees must notify the CBB of any change in audit partner (CBB, 2010).

Auditors appointed by specialized licensees must be independent (cf. Sections AA-1.4 and AA-1.5, CBB, 2010). Auditors who resign or are otherwise removed from office are required to inform the CBB in writing of the reasons for the termination of their appointment (Section AA-1.2, CBB, 2010).

The appointment of auditors normally takes place during the course of the firm's annual general meeting, and specialized licensees should notify the CBB of the proposed agenda. The CBB's approval of the proposed auditor does not limit in any way shareholders' rights to subsequently reject the board's choice. The CBB, in considering the proposed (re-)appointment of an auditor, takes into account the expertise, resources, and reputation of the audit firm, relative to the size and complexity of the licensee. Specialized licensees must notify the CBB as soon as they intended to remove their external auditors. Specialized licensees must ensure that a replacement auditor is appointed (subject to CBB approval), as soon as reasonably practicable after a vacancy occurs, but no later than three months.

According to Article AA-1.2.3 (CBB, 2010), the external auditor of specialized licensees must inform the CBB in writing, should it resign or its appointment as auditor be terminated, within 30 calendar days, of the event occurring, setting out the reasons for the resignation or termination.

Article AA-1.3.1 states that unless otherwise exempted by the CBB, specialized licensees must ensure that the auditor partner responsible for their audit does not undertake that function more than five years in succession (CBB, 2010).

Article 61 (d) of the CBB law imposes conditions for the auditor to be considered as independent. Before a specialized licensee appoints an auditor, it must take responsible steps to ensure that the auditor has the required skills, resources, and experience to carry out the audit properly, and is independent of the licensee (AA-1.4.1, CBB, 2010).

For an auditor to be considered as independent, it must, among other things, comply with the restrictions in Section AA-1.5 in that specialized licensees must not provide regulated services to their auditor (CBB, 2010).

Article 217 (c) prohibits an auditor from: (1) being a chairman or a member of the board of directors of the licensee he/she audits; (2) holding any managerial position in the licensee he/she audits; and (3) acquiring any shares in the licensee he/she audits, or selling any such shares he/she may already own, during the period of his/her audit. Furthermore, the auditor must not be a relative (up to the second degree) of a person assuming management or accounting duties in the licensee (AA-1.5.4, CBB, 2010).

These arguments may be applied and/or linked to Bahrain. In the light of the increasing focus on the stock exchange market of Bahrain as an important avenue for attracting foreign investments and to encourage local residents to invest in shares, Bahraini companies may engage in mandatory audit firm rotation as a means to enhance the quality of audit. And this will help to enhance the company's ability to raise capital at the lowest cost possible (Healy & Palepu, 1993; Lev, 1992).

The motivation of the current study evolved for a number of reasons. First, most of the literature on audit firm rotation focuses on developed countries. The current study, therefore, addresses this issue in developing countries, the case of Bahrain. Second, as far as the current researchers are aware, no such study was carried out with a special reference to Bahrain. The results of this study are hoped to increase knowledge about how listed companies and audit firms in Bahrain reflect MAR through their reporting practices. Third, because Bahrain is a member of GCC countries, it shares a number of specific structural economic features. Key common features of GCC countries are: a high dependency on oil as expressed in the share of oil (and gas) revenues in total fiscal and export revenues; young and rapidly growing national labor forces; and the heavy reliance on expatriate labor in the private sector. In addition, listed companies are subjected to similar reporting requirements. The companies' laws in these countries require all legal entities to submit an annual report which includes a director's report, auditor's report, and financial statements, and to have their accounts prepared in accordance with the International Financial Reporting Standards (IFRS). Thus, GCC countries are expected to benefit from the results of the current study.

Research Methodology

Development of Research Hypotheses

To accomplish the objectives of this research and in the light of the findings drawn from previous studies, together with what have been discussed above under literature review and Bahrain auditing environment, we formulate the following research hypotheses for the current study:

H0: There is no significant relationship between mandatory rotation of external auditors and audit quality.

H1: There is a significant relationship between mandatory rotation of external auditors and audit quality.

Population and Sample of Study

The population of this study consists of all auditors who are working in audit firms in Bahrain and are allowed to practice audit process through Audit Accounts Offices in Bahrain. The number of audit firms is about 25. One hundred and two questionnaires were distributed, and 66 questionnaires were filled by the respondents and returned to us. The response rate is 64.7%.

Data Collection

To achieve the objectives of this study and in the light of literature review and theoretical background, a questionnaire was developed. The questionnaire comprises three sections. Section one contains some demographic information and the current audit practices; section two includes questions about potential effects of mandatory audit firm rotation upon audit quality; and section three comprises questions about overall opinions on requiring mandatory audit firm rotation. The questions in questionnaire are measured using a 5-point Likert scale, where 1 refers to "strongly agree", 2 refers to "agree", 3 refers to "indifferent", 4 refers to "disagree", and 5 refers to "strongly disagree" (A copy of the questionnaire is available upon request).

Reliability of Study Tool

To proof the reliability of the study tool, we gave a copy of the questionnaire to many accounting professors in Bahrain University and other universities both in and outside Bahrain. Also, some copies of the questionnaire were given to auditing professionals in Bahrain. In addition, the questionnaire is given to some

academic professors who are specialized in statistics. All their notes and comments were taken into consideration before we finalized the questionnaire.

Internal Consistency of the Questionnaire's Reliability

The internal consistency of the questionnaire's reliability was measured by using Cronbach's coefficient alpha statistical test as shown in Table 1. The analysis provides an indication of the average correlation among all the items that made up the scale. The results in Table 1 demonstrate that all indices obtained were considered to be high (above 0.70). A sample scale that shows an alpha value above 0.70 is considered as reliable (Bryman & Cramer, 2001). Therefore, the indices for the questionnaire's reliability are generally considered as adequate for this research.

Table 1

Reliability Statistics

Cronbach's alpha	Cronbach's alpha based on standardized items	No. of items
0.790	0.788	16

Statistical Analysis

Descriptive Analysis

Descriptive analysis regarding demography variables is shown in Table 2.

Table 2

Distribution of Respondents According to Demography Variables

Distribution	Frequency	Percentage (%)
Experience		
Less than 5 years	24	36.4
From 5 to less than 10 years	26	39.3
From 10 to less than 15 years	8	12.1
From 15 to 20 years	4	6.1
More than 20 years	4	6.1
Qualification		
B.S.C.	24	36.4
Graduate degree	12	18.2
Certified Public Accountant (CPA)/Chartered Accountant (CA)/Association of Chartered Certified Accountants (ACCA)/Chartered Financial Analyst (CFA)/Certified Management Accountant (CMA)	44	66.7
Others	2	3
Company's auditor		
Big 4	24	36.4
Non-Big 4	42	63.6
No. of employees		
Up to 50	46	69.7
Above 50	20	30.3

It is shown in Table 2 that 63.6% of the respondents have five years and over experience, and this result indicates the extent of experience and maturity that may be reflected positively upon the work. Table 2 also shows that the majority of the respondents (66.7%) have professional certificates, followed by B.S.C. with

36.4% and graduate degree with 18.2%. These results indicate the highest academic level that respondents have, and this may be positively reflected upon the importance of the information given by the respondents. It is also noted from the analysis that 36.4% of the audit firms are Big 4, which means that the level of audit service introduced by such firms is high.

Moreover, Table 2 also shows that the number of employees working in audit firms is 50 on average with 69.7% and above 50 with 30.3%. This result indicates that the audit firms are working very well and have established themselves in the market, since they are able to attract a large number of employees (auditors) to their firms. This means that they have a large number of clients to audit their financial statements.

Table 3 shows the distribution of respondents according to their current audit practices. It is apparent from the analysis that the auditors provide other services other than audit services to their clients. The first service provided is accounting services (97%) followed by internal audit services (75.8%), and then by financial system design and legal services with 54.5% for each.

Table 3

Distribution of Respondents According to Current Audit Practices

Distribution	Frequency (%)		Frequency (%)	
	Yes	%	No	%
Services provided to audit clients (other than audit)				
Financial system design and implementation	36	54.5	30	45.5
Taxation	12	18.2	54	81.8
Accounting services	64	97	2	3
Internal audit services	50	75.8	16	24.2
Management functions or human resources	26	39.4	40	60.6
Legal services	36	54.5	30	45.5
Other non-audit services	34	51.5	32	48.5
Does your company have a policy that requires the mandatory audit firm rotation rules?				
No	38		57.6	
Yes	10		15.1	
No answer	18		27.3	
How many years should the mandatory firm be permitted to compete again for audit services?				
From 3 to less than 5 years	14		21.3	
From 5 to less than 8 years	8		12.1	
From 8 to 10 years	2		3	
Greater than 10 years	2		3	
No answer	40		60.6	
What should be the limit on the mandatory firm's audit tenure period?				
From 3 to less than 5 years	12		18.2	
From 5 to less than 8 years	12		18.2	
From 8 to 10 years	4		6	
Greater than 10 years	0		0	
No answer	38		57.6	
Do you believe that mandatory firm's rotation should be applied uniformly for audits of all public companies regardless of the nature or size of the public companies?				
No	2		3	
Yes	26		39.4	
No answer	38		57.6	

Also, the results show that the majority of the respondents (57.6%) do not require the mandatory audit firm rotation rule, while 15.1% of the respondents have a policy that requires the mandatory audit firm rotation rule and 27.3% have no answer.

Table 3 also indicates that the majority of the respondents (60.6%) have no answer regarding the number of years that the mandatory firm should be permitted to compete once again for audit services followed by choices of three to less than five years (21.30%) and then five years to less than eight years (12.1%).

The results, regarding the statement "What should be the limit on the mandatory firm's audit tenure period?", also indicate that the choices of "three to less than five years" and "five years to less than eight years" have 18.2% for each.

Also, the results, regarding the statement "Do you believe that mandatory firm's rotation should be applied uniformly for audits of all public companies regardless of the nature or size of the public companies?", indicate that the respondents were not in agreement, in which 57.6% have no answer, 39.4% answer yes, and 3% answer no.

Results and Testing of Hypothesis

Table 4 shows the means and standard deviations for each question individually and all questions together that test the hypothesis. The analysis indicates that the means range from 2.1 to 3.11, except for Question 5 where the mean equals 4.27. This means that the null hypothesis is rejected. However, the respondents do not agree with the statement that longer partner tenure makes the auditor loss the most important qualities by which he/she should be characterized, namely, professional audit. Thus, his/her performance lacks the quality in the auditing process. The standard deviations range from 0.68 to 1.09, which means that there is an agreement among respondents about the hypothesis, and the variances are low since the standard deviation of any question is less than half of the related mean, except for Question 5 where the standard deviation is high and equals 7.16, meaning that there is no agreement among respondents regarding this question. However, the average mean, for all questions together, of the hypothesis is 2.73 with the average standard deviation of 0.94, which is less than half of the mean. This means that no dispersion existed among respondents about the questions of the hypothesis. Also, the analysis shows that the *t*-value is 29.922, which is larger than the table critical value of *t* (1.66), and the *p*-value obtained is 0.000, which is less than the value of significance at $p < 0.05$, this means that there is a statistically significant relationship. Thus, the null hypothesis (H0) is rejected, and the alternative hypothesis (H1) is accepted as mentioned above.

Table 4

Means, Standard Deviations, T-value, and P-value Used to Test the Hypothesis

Audit quality					
Question no.	Question	Mean	Std. deviation	*t*-value	*p*-value
1	Longer partner tenure has an effect on the quality of auditor performance in the auditing process.	2.18	0.68	26.170	0.000
2	Longer partner tenure makes the auditor with a non-renewable look to examine the accounts of the clients. This leads to decline of the quality of his/her performance in the review process.	2.58	0.99	21.068	0.000
3	Longer partner tenure makes the auditor repeat of earlier engagements which foster the tendency of anticipating the results rather than keeping alert to important changes in circumstances. This may lead to decline in the quality of his/her performance.	2.52	0.75	27.273	0.000
4	Longer partner tenure makes the auditor depend on the same papers and documents prepared by the client, so his/her performance lacks the quality in the auditing process.	2.52	0.90	22.739	0.000

(Table 4 continued)

Audit quality					
Question no.	Question	Mean	Std. deviation	t-value	p-value
5	Longer partner tenure makes the auditor loss the most important qualities by which he/she should be characterized, namely, professional audit. Thus, his/her performance lacks the quality in the auditing process.	4.27	7.16	22.447	0.000
6	Longer partner tenure leads to the possibility of containing the financial statements with mistakes (he/she did not discover). So, his/her performance lacks the quality in the auditing process.	3.11	0.91	27.690	0.000
7	Longer partner tenure makes the auditor slack in his/her work. This increases the opportunity of not detecting the unintentional mistakes. Thus, his/her performance in the auditing process lacks the audit quality.	2.94	1.02	23.389	0.000
8	Longer partner tenure leads to an increase of the risk that the auditor losses his/her performance and objectivity, which ultimately leads to lower quality of his/her performance in the auditing process.	3.00	1.09	23.157	0.000
9	Longer partner tenure reduces the likelihood that the auditor issues a qualified report.	3.00	1.09	22.482	0.000
10	Longer partner tenure increases auditor's experience and knowledge of the company's operations and industry, which results in a higher audit quality.	2.1	0.97	17.470	0.000
11	Longer partner tenure of 5-10 years is perceived as being more likely to discover material errors than those with 0-5 years experience with the client.	2.79	0.92	24.615	0.000
12	The fresh perspective brought by a new audit firm could increase the audit quality.	2.45	0.75	26.660	0.000
13	The risk of an audit failure is higher in the early years of an audit tenure period, as the new public accounting firm is more likely to have not fully developed and applied an in-depth understanding of the new client's operations and financial reporting practices.	2.91	0.94	25.138	0.000
14	The risk of an audit failure is higher in the early years of an audit tenure period, because the new public accounting firm is more likely to place a heavy reliance on information provided by client management.	3.36	1.02	26.861	0.000
15	The risk of an audit failure is likely to increase as the audit tenure period increases, as client management becomes too familiar with the auditor's approach and procedures.	2.82	1.07	21.484	0.000
16	The risk of an audit failure is higher for specialized industries where the number of audit firms with the requested qualifications is limited, which ultimately leads to lower quality.	2.36	0.85	22.517	0.000
	Average mean and standard deviation for all questions together of the first hypothesis	2.73	0.94	29.922	0.000

Notes. t-distribution with 65 degree of freedom, for level of significance of 0.05. The table critical value is 1.66.

Table 5 below indicates the opinions of the respondents regarding requiring mandatory audit firm rotation. The analysis indicates that 45.5% believe that audit firm rotation would enhance audit quality, independence, and objectivity and should be implemented, 36.4% believe that it can work if rotation period is long enough, whereas 12.1% believe that the benefits of mandatory audit firm rotation would exceed the costs of implementing such a requirement.

Regarding the public company's (or firm's) overall current opinions on whether or not the company supports requiring mandatory rotation of registered public accounting firms, Table 5 shows that 33.3% of the respondents answered that their companies (firms) support requiring mandatory rotation of public accounting

firms, provided that the period of time for rotation is reasonable, while 21.2% of the respondents believed that their companies (firms) support the concept of requiring mandatory rotation, but they believed that more time is needed to evaluate the effectiveness of the various requirements of the SOX of 2002 for enhancing audit quality and 6.1% of the respondents believed that their companies (firms) do not support requiring mandatory rotation of public accounting firms.

Table 5

Distribution of Respondents According to Overall Opinions on Requiring Mandatory Audit Firm Rotation

Answer no.		Frequency	Percentage (%)
There should be a compulsory rotation of audit firms after a fixed number of years			
1	Yes, I believe that it enhances audit quality, independence, and objectivity and should be implemented.	30	45.5
2	Yes, it can work if the rotation period is long enough.	24	36.4
3	No, the benefits of mandatory audit firm rotation would exceed the costs of implementing such a requirement.	8	12.1
4	No answer.	4	6
Regarding your public company's (or firm's) overall current opinions on whether or not your company supports requiring mandatory rotation of registered public accounting firms			
1	The company (firm) supports requiring mandatory rotation of public accounting firms at this time, provided that the period of time for rotation is reasonable (Please provide the principal reason for supporting mandatory rotation below).	22	33.3
2	The company (firm) supports the concept of requiring mandatory rotation, but believes that more time is needed to evaluate the effectiveness of the various requirements of the SOX of 2002 for enhancing audit quality.	14	21.2
3	The company (firm) does not support requiring mandatory rotation of public accounting firms (Please provide the principal reason for not supporting mandatory rotation below).	4	6.1
4	No answer.	26	39.4

Summary and Conclusions

The objectives of this study are: (1) to explore current audit appointment practices by audit firms in Bahrain; (2) to look into the opinions of audit firms in Bahrain on potential effects provided by implementing mandatory audit firm rotation (audit quality); and (3) to investigate their views in implementing mandatory audit firm rotation in Bahrain.

To achieve these objectives, a questionnaire was developed and distributed to respondents that consist of all auditors working in audit firms in Bahrain. The findings indicated that there is a significant relationship between mandatory audit firm rotation and quality of audit. It also indicated that longer partner tenure makes the auditor's performance lack the quality in the auditing process. The average mean of all questions together of the hypothesis is 2.73 with the average standard deviation of 0.94, which is less than half of the mean. This indicated that there is no dispersion among respondents about the questions of the hypothesis. Also, the analysis shows that the t-value is 29.922, which is greater than the table critical value of t (1.66), and the p-value obtained is 0.000, which is less than the value of significance at $p < 0.05$. These results confirm that there is a statistically significant relationship. Thus, the null hypothesis is rejected.

The current study has a number of limitations. First, the scope of this study is limited to audit firms located in Bahrain, and it does not represent the listed companies on the Bahraini financial market. Second, the findings of such a study may not be generalized to different countries at different stages of development or with

different business environments and cultures. A comparative study of MAR practices for different countries with emerging capital markets might also be fruitful. Therefore, it would be interesting to replicate this study in other GCC countries or Middle Eastern countries. Third, as this study focused on the impact of MAR on audit quality in Bahrain, further research may be directed towards examining the impact of MAR upon auditor independence and the cost of audit rotation. However, variables other than those included in the questionnaire of the study may affect the MAR.

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Association Between Independent Auditor Fees and Firm Value: A Study of Brazilian Public Companies

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This article investigates the relationship between fees for audit and non-audit services with Tobin's Q. Using a sample of Brazilian public companies in the period from 2009 to 2011, we estimate the association between Tobin's Q and the auditors' remuneration scaled by total assets. Additionally, to strengthen the conclusions, we present a second model with the remuneration of the auditors in absolute terms. The results suggest a significant relationship between Tobin's Q and audit and non-audit fees, positive and negative, respectively. Specifically, increases in audit fees and non-audit fees respectively increase and decrease the Tobin's Q of the audited company. The results of this study have important implications for those interested in good corporate governance practices. Managers and board members concerned with value creation, when engaging independent auditors, should carefully evaluate the remuneration and nature of services provided.

Keywords: audit fees, non-audit fees, Tobin's Q

Introduction

This article investigates the relationship between audit and non-audit fees and the ratio between the audited company's market value and book value (Tobin's Q). In practical terms, we seek to identify the effect of the remuneration of the independent auditor, be it for audit or consulting services, on an important indicator of value creation. Tobin's Q has been used in various academic studies, notably in the field of finance, as a proxy to assess the capacity of firms to create value.

The main objectives of corporate governance are to improve the company's performance, increase its value, lower the cost of capital, and in the final analysis, assure survival. The mechanism to achieve these goals is by regulating the relationships among controlling and minority shareholders, the board of directors, executive board, and independent auditor.

Before making decisions, investors might consider all the relevant information available to the market, including the amount paid by companies for audit and consulting services rendered by independent auditors. How does the market react to the two expenses? What is the effect of these fees on the value-generation indicators of the client company? These questions are important to meet the main objectives of corporate governance, warranting their examination in detail.

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The international literature has confirmed that the total amounts paid to independent auditors for audit and non-audit services are connected to the performance of companies (Hay, Knechel, & Wong, 2006; Stanley, 2011). However, there has been little investigation of this relationship in the Brazilian market. Therefore, to shed light on a topic not yet examined in the Brazilian setting, here we study the empirical relationship between audit and non-audit fees and the Tobin's Q of 300 largest firms listed on the São Paulo Stock, Commodities, and Futures Exchange (BM&F Bovespa) between 2009 and 2011. More specifically, we analyze whether high audit fees are taken by the market as an indicator of heightened risk, causing a fall in Tobin's Q, and whether the fees paid for consulting services aggregate value and thus raise Tobin's Q.

This study is in line with others that have investigated the determinants of firms' performance. The empirical model developed includes, as variables, the fees for audit and consulting services, total assets, capital intensity, and sales growth. Robust empirical tests provide evidence of a significant relationship between performance on the one hand and audit and non-audit fees on the other hand.

The results show that increases in the audit fees and non-audit fees raise and lower Tobin's Q, respectively. In other words, for the Brazilian firms studied, there is a positive impact of audit fees on Tobin's Q, while there is a negative impact of consulting fees on the Q metric.

This study was made possible by the issuance of Instruction 480 in 2009 by the Brazilian Securities Commission (CVM), making it mandatory for listed companies to publish the annual amounts paid to the independent auditor, separated into the fees for audit services and consulting services.

The rest of this article is organized as follows. In the next section, we summarize the relevant literature, while in the third section, we explain the methodology and describe the database, variables, and specification of the models. The fourth section presents and discusses the descriptive statistics, the correlations, and estimations of the model and the robustness tests. The fifth section presents our conclusions and final considerations.

Literature Review

This section starts with a review of the main determinants of the quality of audit in Brazil, which are later included as independent variables in the model. Then, we discuss some important contributions from the literature to pricing of auditing, to understand how audit fees and consulting fees are related to the companies' performance.

Determinants of Audit Quality in Brazil

The 1980s brought the first studies involving the role of auditing in Brazil (Hallak & Silva, 2012). With respect to the services provided, the financial independence of audit firms affects the final result, which can be more or less biased depending on how free the auditor is to scrutinize the company's accounting practices (Braunbeck, 2010). Audit firms that do not have dependence compete in offering differentiated services that aggregate value for the clients, and consequently they charge higher fees, for which they render better services (Francis, 1984). In general, the audit fees can be used to measure the quality of the service provided (Hallak & Silva, 2012). Therefore, it is not enough for the auditor just to have expertise; the auditor must also have independence (DeAngelo, 1981; Watts & Zimmerman, 1986).

Dependence of an auditor occurs when a single client provides a substantial portion of its revenues. In such a context, the evidence shows that there will be a greater chance that the auditor will overlook significant

errors or inconsistencies in the financial statements, out of fear of losing that client (Larcker & Richardson, 2004).

Studies show that one of the main elements of auditor independence is related to the receipt of consulting fees by audit firms (Frankel, Johnson, & Nelson, 2002). Therefore, the quality of auditing services in Brazil is lower when there are agency problems (Braunbeck, 2010).

The auditor's independence makes the external auditing service work as a corporate governance mechanism, with the aim of resolving agency problems and information asymmetry between stockholders and managers (Jensen & Meckling, 1976). Agency conflicts are mitigated when the external auditor has sufficient independence to produce information that closely reflects the true financial situation of the client company (Hallak & Silva, 2012).

According to Bortolon, Sarlo Neto, and Santos (2013), good corporate governance practices affect audit costs, because they require more complex and extensive analyses, but they can also mean a reduction of risk to the auditor, reducing the cost of the service. In turn, the contracting of non-audit services can lead to a loss of independence, because the auditor will be more hesitant to blow the whistle on dodgy accounting practices for fear of losing the consulting revenue.

Audit Fees and the Performance of Companies

Various articles have addressed the pricing of audit fees (Moutinho, Cerqueira, & Brandao, 2012). Since Simunic (1980) developed a model to determine the process by which audit fees are set, other empirical studies have been published with the aim of defining the pricing of audit fees. Here, our aim is to model audit and non-audit fees in function of other variables, as done by Francis (1984), specifically by using Tobin's Q, capital intensity, and sales growth.

The fees charged for auditing reflect the time spent to render the service (Moutinho et al., 2012), which is related with the size of the client company, because larger companies have more data to examine (Hallak & Silva, 2012). Therefore, the size of the client company impacts the price paid for audit services (Palmrose, 1986).

Furthermore, auditors will typically spend more time (all else being equal) providing auditing and consulting services to highly leveraged companies, due to the greater risk of insolvency. Therefore, both these fees will typically be higher in companies with large debt loads (Hallak & Silva, 2012; Zaman, Hudaib, & Haniffa, 2011).

In relation to consulting fees charged by independent audit firms, Ashbaugh, Lafond, and Mayhew (2003) showed that there is a positive relationship between financial leverage and consulting expenses.

There are many studies with different focuses, models, and variables relating to the determinants of companies' spending on audit and consulting fees, but the results have been widely disparate, as stated by Dickins, Higgs, and Skantz (2008). This variability can be explained to a certain extent by the differing characteristics of each country or region and the time period examined (Hay et al., 2006).

The objective is to investigate the relationship between auditors' remuneration for audit and non-audit services and the value of Tobin's Q.

Methodology

Database

This study can be characterized as descriptive, since we describe the data gathered from the website of the

CVM (http://www.cvm.gov.br/) and the Economatica database. According to Barros and Lehfeld (2000, p. 70), descriptive research "seeks to discover how often a phenomenon occurs, its nature, characteristics, causes, relations, and connections with other phenomena".

The population consists of 300 largest companies listed on the BM&F Bovespa according to market value. Because data on the fees paid by listed companies for audit and consulting services only had to be disclosed starting in 2009, this study is limited to the period from 2009 to 2011. We obtained this information for each company from the corresponding Reference Form (RF), Section 2—"Independent Auditors", posted at the CVM's website. On the form, these fees are broken down into those for audit and non-audit services.

From the Economatica database, we obtained information on: (1) market value; (2) current assets; (3) long-term assets; (4) total assets; (5) current liabilities; (6) long-term liabilities; (7) stockholders' equity; (8) liabilities + equity; (9) gross revenue; (10) net revenue; (11) net income; (12) earnings before income tax (EBIT); and (13) earnings before income tax, depreciation, and amortization (EBITDA). These data were then used to calculate the variables, which we organized into panels to accompany the variations for each company during the 3-year study period.

Variables

Table 1 presents the definitions of the variables and data sources. Most of these variables are based on the financial information obtained from the Economatica database. There is evidence that audit firms determine their fees according to the financial condition of the client (Choi, C. F. Kim, J. B. Kim, & Zang, 2010; Simunic, 1980).

To measure how audit and non-audit fees affect the performance of companies, we employed a set of value and performance measures that have been used by other authors: Tobin's Q (Bebchuk, Cohen, & Ferrell, 2009; Bhagat & Bolton, 2008); total assets (Lee, 2009); capital intensity (Lee, 2009); sales growth (Lee, 2009); and leverage (Bebchuk et al., 2009).

Table 1

Definitions of the Dependent Variables

Dependent variable	Definition	Source
Tobin's Q	The ratio between the firm's market value and book value of equity. Tobin's Q = Market value/book value	Economatica
Audit fees	The amount paid to the independent audit firm for auditing the financial statements.	CVM
Non-audit fees	The amount paid to the independent audit firm for additional consulting services.	CVM
Assets	The total assets of the audited company.	Economatica
Capital intensity	The ratio of fixed assets to net revenue. Capital intensity = Total assets/net revenue	Economatica
Sales growth	The ratio between net revenue in the current year and that in the previous year.	Economatica
Leverage	The ratio between long-term liabilities and total assets.	Economatica

Notes. This table presents the definitions of the variables and the sources of the data. The sample period is from 2009 to 2011.

Econometric Models

Model 1—Remuneration of the audit firm scaled by total assets of the client company. To test the association between Tobin's Q and audit fees, we estimated the following equation, using panel data:

$$\begin{aligned} Tobin\text{'}s\ Q = \beta_0 + \beta_1(Audit\ \ fees / Assets) + \beta_2(Non\text{-}audit\ \ fees / Assets) + \\ \beta_3 \ln(Assets) + \beta_4 Capital\ intensity + \beta_5 Sales\ growth + \beta_6 Leverage + \varepsilon \end{aligned} \tag{1}$$

where β_0 indicates the intercept, ε is the error term, and the other variables are defined in Table 1. We estimated the model by least squares (LS) and autoregression (AR).

In this model, both the audit and non-audit fees are scaled by total assets of the client company and the total assets are in natural logarithm.

The hypothesis is confirmed if there is a significant negative relationship between the audit fees and a positive relationship between non-audit fees and the performance metric Tobin's Q.

The theoretical basis is that the high audit fees scaled by client size can be due to the greater effort involved when risks are higher, consequently lowering Tobin's Q (negative sign). On the other hand, high consulting fees supposedly aggregate value to the company, thus having a positive effect on Tobin's Q (positive sign).

Model 2—Remuneration of the audit firm in absolute terms. We formulated a second model to test the robustness of the results. The hypotheses are the same as before, except that the audit and non-audit fees are not scaled by assets. The following equation was estimated, using panel data:

$$\begin{aligned} Tobin\text{'}s\ Q = \beta_0 + \beta_1 \ln(Audit\ \ fees) + \beta_2 \ln(Non\text{-}audit\ \ fees) + \beta_3 \ln(Assets) \\ + \beta_4 Capital\ intensity + \beta_5 Sales\ growth + \beta_6 Leverage + \varepsilon \end{aligned} \tag{2}$$

where β_0 indicates the intercept, ε represents the error term, and the other variables are defined in Table 1. Again, we estimated the model by LS and AR.

In this model, we used the natural logarithm of audit fees and non-audit fees, and also of total assets, as in the previous model.

Analysis of the Results

In this section, we present the results. First, we analyze the data by descriptive statistics and correlation matrices of the variables. Then, we report and analyze the results, before drawing conclusions.

Descriptive Statistics

For a proper econometric analysis of the model described by Equation (1), we had to discard some observations, so that only 377 firm-years remained. The descriptive statistics of the variables included in the equation are shown in Table 2. In the descriptive statistics of Equation (1), the fees paid to audit firms for audit and non-audit services (both scaled by assets) are 0.305480 and 0.100170, respectively (see Table 2). This indicates that fees in average terms are high when compared to the client company's assets. Technology companies, in particular, usually pay heavy fees for both services in relation to their total asset value. In the sample studied, the overall Tobin's Q is 2.854028 for the 377 companies in the sample, and the natural logarithm of assets is 8.335226.

Correlation Matrix of the Variables

The results of examining the correlations of the variables are shown in Table 3. The correlation between Tobin's Q and the remuneration of the audit firms is weak. In fact, the correlations between Tobin's Q and all the variables are nearly zero. The correlation of Tobin's Q is negative both with audit fees and consulting fees.

Table 2

Descriptive Statistics of Equation (1)

Variable	Mean	Median	Std. dev.	Kurtosis	Jarque-Bera	Observation
Tobin's Q	2.854028	1.660211	6.414991	90.66550	124,626.9	377
Audit fees/assets	0.305480	0.195600	0.389475	34.99823	17,402.87	377
Non-audit fees/assets	0.100170	0.028155	0.257995	56.88646	48,176.12	377
Ln(Assets)	8.335226	8.254529	1.530620	3.923240	13.44466	377
Capital intensity	6.409815	1.462609	36.77749	147.4800	336,090.9	377
Sales growth	1.158290	1.111111	1.175610	96.61735	142,234.1	377
Leverage	0.275542	0.301378	0.172864	9.113123	633.4677	377

Notes. This table presents the descriptive statistics of the variables included in Equation (1). The variables are defined in Table 1, and the sample period is from 2009 to 2011.

Table 3

Correlation Matrix of Equation (1)

Variable	Tobin's Q	Audit fees/assets	Non-audit fees/assets	Ln(Assets)	Capital intensity	Sales growth	Leverage
Tobin's Q		-0.00532	-0.120307	0.051739	-0.006410	0.073400	-0.005530
Audit fees/assets	-0.00532		0.415815	-0.537323	-0.053316	0.094960	0.186816
Non-audit fees/assets	-0.120307	0.415815		-0.359224	-0.019240	-0.063557	0.183337
Ln(Assets)	0.051739	-0.537323	-0.359224		0.045488	0.000026	-0.12536
Capital intensity	-0.006410	-0.053316	-0.019240	0.045488		-0.007623	-0.002812
Sales growth	0.073400	0.094960	-0.063557	0.000026	-0.007623		-0.039660
Leverage	-0.005530	0.186816	0.183337	-0.122536	-0.002812	-0.039660	

Model 1—Remuneration of the Audit Firm Scaled by Total Assets of the Client Company

The results of the first model are presented in Table 4. The correlation matrix demonstrates that there is no strong correlation between Tobin's Q and the audit firm's remuneration. However, the regression performed with Model 1 indicates that companies that pay more to their auditors for audit services tend to have a higher Tobin's Q.

Table 4

Equation (1)—Results of the Estimation

Independent variable	Tobin's Q			
	Coefficient	Std. error	*t*-statistic	Prob.
Intercept	0.470555	2.229132	0.211093	0.83229
Audit fees/assets	8.884492	0.980346	9.062606	0.0000
Non-audit fees/assets	-8.424868	1.296851	-6.496402	0.0000
Ln(Assets)	0.058244	0.244573	0.238148	0.8119
Capital intensity	-0.000766	0.007879	-0.097194	0.9226
Sales growth	-0.021719	0.254995	-0.085173	0.9322
Leverage	0.210282	1.743157	0.120633	0.9040
R-squared	0.249015		Log likelihood	-1,181.165
Adj. *R*-squared	0.236836		*F*-statistic	20.44767
S.E. of regression	5.604086		Prob.(*F*-statistic)	0.000000
Sum squared resid.	11,620.14			

Note. Total panel (unbalanced) observations: 377.

The results of the estimation show that the remuneration of the audit firm influences Tobin's Q, i.e., the market value in relation to book value. The more companies pay their auditors for audit services, the greater is the impact on the ratio between the market value and book value, which is indirectly the stock value, bringing a positive relationship.

In other words, the market tends to look more kindly on companies that spend relatively more on audit services, pricing their shares higher. In contrast, high relative spending on non-audit services has a strongly negative effect on the stock price.

Model 2—Remuneration of the Audit Firm in Absolute Terms

To provide more robustness to the conclusions, we analyzed Model 2, considering now the audit and non-audit fees in absolute terms, according to Equation (2) (see Table 5). The results are consistent with those found for Equation (1).

Therefore, the most important result is that the more companies spend on audit services, the higher their Tobin's Q tends to be, meaning a higher market value in relation to book value. On the other hand, paying the auditor to perform consulting services has a significantly negative impact on Tobin's Q. In general, the purpose of Equation (2) was to test the robustness of each explanatory variable of the model.

Table 5

Equation (2)—Results of the Estimation

Independent variable	Tobin's Q			
	Coefficient	Std. error	*t*-statistic	Prob.
Intercept	6.102742	1.964000	3.107303	0.0020
Ln(Audit fees)	1.473669	0.423401	3.480550	0.0006
Ln(Non-audit fees)	0.526335	0.159050	-3.309251	0.0010
Ln(Assets)	-1.315308	0.328622	-4.002491	0.0001
Capital intensity	-0.001495	0.008692	-0.171949	0.8636
Sales growth	0.439124	0.275121	1.596110	0.1113
Leverage	-1.007220	1.874978	-0.537190	0.5915
R-squared	0.091333		Log likelihood	-1,211.581
Adj. *R*-squared	0.076518		*F*-statistic	6.164799
S.E. of regression	6.180288		Prob.(*F*-statistic)	0.000004
Sum squared resid.	14,056.11			

Note. Total panel (unbalanced) observations: 375.

Conclusions

A huge number of articles in the business literature have investigated the performance of companies, including those examining the relationship of the fees paid to the independent auditors for audit and non-audit services with financial characteristics of the client companies, such as business risk. Here, we sought to identify aspects that influence the market value and book value of companies, indirectly capturing factors that create value.

In particular, our aim was to verify whether high fees for audit services signal risk, thus lowering Tobin's Q, and whether high fees for non-audit services are viewed by the market as aggregating value, and hence have a positive effect on Tobin's Q. For this purpose, we used fixed-effect models with a sample of 300 companies listed on the BM&F Bovespa in the period from 2009 to 2011 (reduced by the restrictions imposed from

estimating the proposed models). The equations included the following explanatory variables: audit fees, non-audit fees, total assets, capital intensity, sales growth, and leverage.

The results provide evidence of a significant relationship between Tobin's Q and audit fees, but with the opposite sign expected in the first hypothesis. Specifically, when companies spend more on audit services, this has a positive effect on the ratio between market value and book value. In other words, the more the companies in our sample spent on audit services, the higher their Tobin's Q tended to be during the sample period. In contrast, there was a significantly negative effect of spending on non-audit services rendered by the independent auditor, producing a lower Tobin's Q, running counter to the second hypothesis.

The results of this study have important implications for those who are oriented to good corporate governance practices. To create value, managers and members of the board of directors, when deciding on the scope of the services rendered by the independent audit firm, should carefully consider the remuneration and nature of the services contracted. Apparently, the money spent on audit services is compensated with higher Tobin's Q values, probably due to the lower perceived risk that the numbers presented in the financial statements do not accurately reflect the companies' real situation. However, the situation is different regarding non-audit services, where we found a negative relationship with Tobin's Q, indicating that the market does not perceive these services as aggregating value.

The results here were of course limited by the restrictions in the database, and also to the Brazilian setting. The fact that information on payments to the independent auditor for audit and consulting services only covers three years, as well as the fact that the control variables required dropping many observations from the sample, naturally compromised the consistency of the coefficients estimated. Furthermore, the simplified approach used to calculate Tobin's Q brings the chances of measurement errors that could have biased the conclusions. Despite these methodological limitations, we believe that the results are informative and bring important implications for those involved with corporate governance of modern companies.

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Forensic Auditing Techniques and Fraudulent Practices of Public Institutions in Nigeria

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Public institutions are charged with the responsibility of providing essential services for the welfare of the citizens by manipulating the economy's financial flow through public expenditure, taxation, and so on. The reliance on public institutions to provide public services in Nigeria has resulted in disappointing results, because chief executives of the institutions take less interest in the degree of its success, and this accounts for the high level of fraudulent practices in such institutions. This study, therefore, examined the relationship between forensic auditing and fraudulent practices in Nigerian public institutions. To achieve this purpose, some hypothetical statements were made and a review of relevant literature was explored. The population of the study consisted of the general managers and accountants of 12 public institutions in Nigeria. The data generated were statistically tested with the Pearson Product-Moment Correlation Coefficient. The findings suggest that both the proactive and reactive forensic auditing techniques have a negative significant relationship with fraudulent practices in Nigerian public institutions. Based on the above, it was recommended that: (1) The Economic and Financial Crime Commission (EFCC), the Independent Corrupt Practices Commission (ICPC), and other anti-corruption bodies in Nigeria should have, in their payroll, internal forensic auditors to supplement the duties of the internal auditors; (2) Forensic auditors should regularly undergo training and development programs to acquaint them with relevant knowledge and skills for effective forensic auditing; and (3) Forensic auditing should be made mandatory for public institutions by regulatory authorities rather than being voluntary.

Keywords: proactive auditing, reactive auditing, fraudulent practices, forensic auditing, Nigerian public institutions

Introduction

Fraudulent practices have stood as potent weapons capable of hemorrhaging the entire economy particularly the public sector because of the high risk factor associated with such practices. The susceptibility of public institutions to fraudulent practices from within and without has not spared Nigeria.

With an increasing commitment to this negative value by the emergent elite, a myriad of government businesses are fraught with one form of fraudulent practices or the other, and the suffering of the people became intensified. This scenario was best captioned by Goffredo (1993) when he stated that "not only does

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thief go on in the state apparatus, but the state itself is the apparatus of theft" (p. 78). In Nigeria, not only do officials steal, but stealing is also official (Jegede, 2008). It is the very principle of Nigerian public servants. It is important to know that the burden of fraudulent practices lies on the citizenry, since capital needed for development is expropriated by the political leaders. Without any ambiguity, state corrupt practices account for the current predicament of the Nigerian people. Jegede (2008) identified three important factors, which account for the continued under-development of Nigeria. The first factor is the prevalence of fraud and acute mismanagement of public revenues, a scenario which accounts for the non-translation of massive revenues from oil resources into meaningful physical development both locally and nationally. The second factor is the contribution of domestic political accumulation and diversion of money meant for national development to private accumulation implicated in the routine practices of the political and traditional elites. The third factor involves the procedural remittance of funds based on the subsisting agreement among the corrupt officials at all levels. Funds meant to cushion the effect of oil exploration especially in the Niger-Delta region are often jointly shared by political actors responsible for fund disbursement (federal executives), project executors (state governors and local government chairmen), and traditional elites (title holders) who are often cut in-between class and ethnic interests.

According to Esangbedo (1997), corruption, which is the mother term for fraudulent practices, is a social malady, which has eaten deep into the fabric of our national solidarity. It has the potential to ruin an economy if not properly checked. It is committed in various ways, such as over-invoicing and inflation of bills, payment for services not rendered, inclusion of ghost workers in payroll, under supply of materials fully paid for, supply of inferior quality and outdated materials, and non-performance of contracts or jobs for which payments have been claimed.

Noreng (1981; as cited in Ukpai, 2006) revealed the following causes of fraudulent practices in public institutions and functions: absence of political maturity to counter balance the temptation of fraudulent practices; lack of systematic planning and organization; rapid increase in civil service workforce; resulting in chronic low pay and the search for alternative income; wrong and poor value system; prevalence of private interests to public interest; and lack of a practical distinction between politics and economics.

Over time, various panels of inquiries have been set up to investigate cases of fraudulent practices in Nigeria. However, such panels, more often than not, end up with little or no result. The implication of this is that a major element in a system of accounting and financial management is lacking. This portends that much needed to be done in terms of financial reporting and public financial accountability. In view of the above, researchers, regulatory authorities, and professional bodies have emphasized the need for forensic auditing techniques.

Purpose of the Study

It is on this premise that this study aimed at investigating the relationship between forensic auditing techniques and fraudulent practices in Nigerian public institutions. To achieve the above objectives, the following null hypotheses were raised:

(1) Proactive forensic auditing has no significant relationship with fraudulent practices in Nigerian public institutions;

(2) Reactive forensic auditing has no significant relationship with fraudulent practices in Nigerian public institutions.

Literature Review

In the government, forensic audit usually examines allegations and complaints about wrongdoing involving significant federal funds or assets. The procedures used are designed (who, what, how, when, and where) in a manner that ensures that any evidence of wrongdoing may ultimately be presented in administrative, civil, or criminal proceedings. According to Grippo and Ibex (2003), forensic audits are more intensive than regular audits and are usually conducted in a series of steps to determine if allegations can be substantiated and to identify the nature of any further work needed. Important first steps are to ensure that the allegation or complaint has merit that adequate evidence is available and that a department has the authority to investigate or audit. This is particularly important when a recipient of a grant, contribution, or other transfer payment receives resources from sources other than the department. In this regard, it is also important that the records of the recipient allow for the investigation or audits to trace how a department's funds were used.

Thornhill (1995) stated that forensic audits require a clear and detailed audit plan that is designed to obtain information on how, when, and where a wrongdoing occurred and who committed such a wrongdoing. Normally, a preliminary examination would be conducted to allow for the assessment of the allegations or complaints in terms of specified criteria such as materiality and impact. An audit plan should have clear objectives and timeliness, and it should identify the skills needed, the estimated costs, and any limitations on the scope of the examinations. Contractors should have statement of work (engagement letter) detailing their roles and responsibilities.

Forensic audit reports are usually lengthy and extensively substantiated and contain a clearly documented chronology of events (Ghali, 2001). Whether conducted by external experts under contract or by departmental staff, the auditors must have the necessary qualifications and knowledge to conduct them. Departmental officials who supervise such audits also need special training. Experts who conduct forensic audits need special qualifications and knowledge. They will need to become familiar with a program's financial and management controls and what would constitute a wrongdoing under applicable legislation and policies. In addition, forensic auditors need to: (1) have the skills to determine what to examine, what constitute relevant and valid evidence, where to look for it, and how to obtain or extract it; (2) be adept at interviewing departmental and recipient officials; and (3) be able to present findings and explanations in a manner that can be used to support administrative, civil, or criminal action.

It should be kept in mind that forensic auditors may be called as expert witnesses in administrative, civil, or criminal proceedings. They must, therefore, be able to testify in an understandable and impartial manner. It should also be noted that departmental officials involved in the administration of the program as well as those responsible for initiating or acting on the results of the audit may be called as witnesses (C. C. Albrecht, W. S. Albrecht, & Dunn, 2001).

Indicators of Fraudulent Practices

Both the management and employees of an organization have inept desires for fraudulent practices. The indicators of employees' fraudulent practices as revealed by Girling (1997) are:

(1) Overworking: Financial criminals are sophisticated and know that the typical suspects of misdeeds in organizations are likely to be those who miss work a lot, call in sick, go home early, and so forth. Hence, the financial criminal (also by inclination) tends to work long and hard, stays after hours, volunteers for extra

duties, or in short, attempts to appear as a superstar in the organization. This is called the protective behavior pattern (Mohd & Mazni, 2008);

(2) Over-personalized business matters: Mohd and Mazni (2008) claimed that a financial criminal will become extremely upset over little things that touch on or threaten their scam or fraud, and this may be something as minor as a change in office location, or something like another employee dealing with a vendor that only they think they should be dealing with. They may also not have kind words to say about top management (calling them corrupt), because: (a) They want to be perceived as a powerbroker or dealmaker; and (b) They plan to claim, if caught, that the kind of thing they did was nothing compared to what goes on at the top;

(3) Anti-social loner personality: The criminal may or may not have this personality to begin with, but criminologists say that something about the unshareable aspects of financial crime may cause the person to become a loner. Their constant griping about top management and how screwed up the workplace is also tends to result in a perception that they are anti-social. Their relationships with co-workers can be characterized as cold and impersonal, since all they are inquisitive about is how co-workers do their jobs so they can learn about any system controls that are in place throughout the organization (Maier, 2002);

(4) Inappropriate lifestyle change: Few financial criminals can resist the urge to spend some of their ill-gained loot, and their lifestyles, assets, travels, or offshore bank accounts will just not add up to the salary they are making. They are driven by money and ego, and if given the chance, they will jump at almost every opportunity to make more money and to boast and brag about knowing such opportunities.

On the part of management, Mohd and Mazni (2008) identified the following indicators of fraudulent practices:

(1) Unrealistic performance compensation packages: The organization will rely almost exclusively, and to the detriment of employee retention, on executive pay systems linked to the organization’s profit margins or share prices;

(2) Inadequate board oversight: There is no real involvement by the board of directors. Board appointments are honorariums for the most part, and conflicts of interest as well as nepotism (the second cousin to corruption) are overlooked;

(3) Unprofitable offshore operations: Foreign operation facilities that should be closed down are kept barely functioning, because this may be where top management fraudsters have used bribes to secure a “safe haven” in the event of need for a swift exit;

(4) Poor segregation of duties: The organization does not have sufficient controls on who has budget authority, who can place requisitions, or who can take customer orders, and who settles or reconciles these things when the expenses, invoices, or receipts come in;

(5) Poor computer security: The organization does not seem to care about computer security, has slack password controls, and has not invested in antivirus, firewalls, log files, data warehousing, data mining, or the budget and personnel assigned to IS. Simultaneously, the organization seems to be over-concerned with minor matters, like whether employees are downloading music, chatting, playing games, or viewing porn;

(6) Low morale, high staff turnover, and whistle-blowers: Low morale and staff shortages go hand-in-hand, employees feel overworked and underpaid, frequent turnover seems to occur in key positions, and complaints take the form of whistle-blowing.

Forensic Auditing and the Auditor-General

Forensic auditing has a unique focus, which distinguishes it from regular, performance, and computer auditing, but the interdependence of the various disciplines is acknowledged. These audit disciplines, which form the functional audit components, have thus far been very instrumental in highlighting instances of possible economic crimes.

According to Falie (1999), the objectives of the office of the auditor-general with forensic auditing include:

(1) To determine the nature and extent of the perpetration of economic crimes and the adequacy and effectiveness of measures that should have either prevented or detected such crimes;

(2) To facilitate the investigation of economic crimes in general by providing support to the relevant investigating and/or prosecuting institutions (by handing over cases and providing accounting and auditing skills).

Proactive and reactive techniques have been developed to achieve these objectives. The proactive technique is aimed at preventing economic and financial crimes by promoting an overall fraud awareness culture in the public sector through, inter alia, publications, presentations/workshops, and participation in relevant national and international initiatives (Uzoka, 1990). This is done with the aim of promoting a culture of "zero" tolerance through interventions, such as publishing relevant articles, participating in workshops, seminars, and conferences (which provide developmental learning and networking opportunities), presentation of training programmes, providing support to national/international initiatives, and making stakeholders aware of deficiencies in the measures instituted to prevent or detect economic crimes.

The most efficient and effective way to prevent economic crimes is to know the circumstances surrounding them or the conditions that will enhance the possibility of their occurrence. According to Levanti (2001) and Squires (2003), the approach to be followed in this regard is based on the fact that the following aspects should minimize the risk of economic crimes:

(1) Strong financial management systems: The auditor-general is authorized to enquire into the efficiency and effectiveness of internal controls and financial management systems and to report thereon. Management is well informed that, should the measures and systems implemented by them not be adequate to ensure probity and reduce the risk of economic crimes, they will be held accountable through the office's reports to the relevant legislative bodies;

(2) Effective internal controls: In determining the scope and extent of the audit, in terms of the Generally Accepted Government Auditing Standards, the auditor-general is compelled to study and evaluate the reliability of internal controls, which could include organization of work, segregation of duties, physical security measures, authorization and approval, arithmetical and accounting procedures, effective training of staff, supervision, and management. The fact that the auditor-general, in its audit approach, conducts procedures to evaluate the effectiveness and reliability of the relevant institution's internal controls and to report thereon, serves as a very definite deterrent for potential perpetrators of economic and financial crimes;

(3) Adequate public awareness (and acceptable standards of conduct): The results of the auditor-general's findings are made available to all the relevant legislative bodies at all government levels, at least annually. These findings become public knowledge once the audit reports have been tabled and the general public has

access to them. There is a disclosure policy entailing the issue of media releases on the findings of the audit to provide additional public awareness. This public disclosure of audit findings serves as another deterrent to economic crimes.

According to Ansari (2005), the reactive technique focuses on the investigation of allegations of economic and financial crimes. The submitted allegations are confirmed or refuted by collecting and submitting substantive evidence. The objective would be to investigate and report on: (1) the nature and extent of the specific instance of economic and financial crimes; (2) the suspects involved; (3) deficiencies in the measures that should have prevented or detected the crimes; (4) recommending punitive steps and further actions in respect of: (a) criminal prosecution; (b) criminal recovery; and/or (c) disciplinary action; and (5) progress made by other institutions in investigating relevant cases.

Findings are then reported on through the normal audit process or, when applicable, are handed over to institutions with investigating and prosecuting powers, such as the Economic and Financial Crime Commission (EFCC) and Independent Corrupt Practices Commission (ICPC).

The auditor-general has developed several strategies to address economic and financial crimes, which are being implemented on the following principles:

(1) Firstly, the auditor-general as the external auditor of state institutions is not responsible for the prevention and detection of economic crimes in the public sector, since this is the ultimate responsibility of management (accounting officers);

(2) Secondly, the principle or understanding on which the auditor-general bases his strategies is the acknowledgement of the roles played by other institutions in the prevention, detection, and investigation of economic crimes. Where possible, these institutions are supported by, inter alia, providing assistance and cooperation. The assistance and cooperation among these role players are indeed to be taken up in a formal agreement;

(3) Thirdly, the principle or understanding on which the auditor-general bases his strategies is that of playing an active role in supporting existing initiatives and programmes that aim to combat economic crimes, e.g., the ICPC, EFCC (Laws of the Federation of Nigeria [LFN], 2004).

Albrecht et al. (2001) identified the following key functions of forensic auditing: (1) to carry out the vision and mission of forensic audit to prevent, detect, and investigate issues of fraud and financial abuse within an organization/entity; (2) identification of causative factors and collection of facts for individual investigations by leading the evaluation of internal control weaknesses that allow unethical business behaviors and practices to occur and go undetected; (3) lead internal and external resources in an effort to address allegations of fraud raised within the system; (4) provision of help in the development of fraud awareness training and analyze fraud trends and internal control procedures; (5) perform a comprehensive analysis of investigation results across the enterprise to identify pervasive control issues; (6) oversee the investigations, planning, and forensic report writing process for forensic audits, and investigations and presentation of findings through reports and exhibits; (7) work closely with financial training function to enhance fraud-auditing skills; (8) develop the fraud prevention, detection, and investigation program and management of company's Fraud Risk Assessment program; (9) conduct activities in areas of moderate to high risk; (10) conduct complex and extremely sensitive investigations; (11) promote education and awareness on fraud risk management throughout the bank; and (12) testifying in court as an expert witness (Girling, 1997).

Methodology, Findings, Analysis, and Discussion

In this study, the survey method of research design was adopted in generating the necessary data. Population of the study consisted of 12 public institutions in the Rivers State of Nigeria. In order to gather the data for the study, a structured questionnaire was administered on the internal auditors and chief accountants of the selected public institutions. The data generated for the study were analyzed with frequencies and percentages, while the stated hypotheses were statistically tested with the Pearson Product Moment Correlation Coefficient, which was computed with the aid of the Statistical Packages for Social Sciences (SPSS) Version 17.

In this study, forensic auditing technique was operationalized as proactive forensic auditing and reactive forensic auditing, while over-invoicing and inflation of bills were used as measures of fraudulent practices. This is reflected in the model shown below:

$$FRAP = f(a_0 + b_1 PAFA + b_2 REFA + \text{----------------} U_i)$$

where:

a: Regression constant;

b: Regression coefficient;

U_i: Stochastic term;

FRAP: Fraudulent practices;

PAFA: Proactive forensic auditing;

REFA: Reactive forensic auditing.

The hypotheses stated earlier in this study were hereby tested:

(1) Proactive forensic auditing has no significant relationship with fraudulent practices in Nigerian public institutions.

In testing this hypothesis, measures of proactive forensic auditing were related with measures of fraudulent practices. The result is shown in Table 1.

Table 1

Relationship Between Proactive Forensic Auditing and Fraudulent Practices

	Statistical variable	FRAP	PAFA
FRAP	Pearson correlation	1	-0.81
	Sig. (2-tailed)		0.021
	N	5	5
PAFA	Pearson correlation	-0.81	1
	Sig. (2-tailed)	0.021	
	N	5	5

Note. Source: SPSS Version 17 Window Output.

The data presented in Table 1 revealed a correlation coefficient of -0.81, which suggests a high negative relationship. The *P*-value (0.021) is less than the 0.05 significance level for a 2-tailed test, which indicates a significant relationship. Hence, the null hypothesis was rejected. This implies that proactive forensic auditing reduces the risk of fraudulent practices in Nigerian public institutions.

(2) Reactive forensic auditing has no significant relationship with fraudulent practices in Nigerian public institutions.

In testing this hypothesis, measures of reactive forensic auditing were related with measures of fraudulent practices. The result obtained is shown in Table 2.

The data presented in Table 2 revealed a correlation coefficient of -0.716, which suggests a high negative relationship. The *P*-value (0.036) is less than the 0.05 significance level for a 2-tailed test, which suggests a significant relationship. Hence, the null hypothesis was rejected. This implies that reactive forensic auditing reduces the risk of fraudulent practices in Nigerian public institutions.

Table 2

Relationship Between Reactive Forensic Auditing and Fraudulent Practices

	Statistical variable	FRAP	REFA
FRAP	Pearson correlation	1	-0.716
	Sig. (2-tailed)		0.036
	N	5	5
REFA	Pearson correlation	-0.716	1
	Sig. (2-tailed)	0.036	
	N	5	5

Note. Source: SPSS Version 17 Window Output.

Conclusion, Limitations, and Recommendations

The increasing rate of fraudulent practices and other irregularities in government accounts and financial statements portends significant harm to the organizations involved and the general public at large. This has led to the emergence of forensic auditing as an instrument to manage fraudulent practices.

From the result of our analysis, it was revealed that both the proactive and reactive forensic auditing have a negative significant relationship with fraudulent practices in Nigerian public institutions. This implies that as forensic auditing practices in Public institutions increase, fraudulent practices will reduce. However, the restriction of this study to the Rivers State only, out of the 36 states of the Federation of Nigeria, may question the generalizability of our research findings. Based on the result of this study and the conclusion drawn thereof, the following recommendations were made:

(1) The EFCC, ICPC, and other anti-corruption bodies in Nigeria should have, in their payroll, internal forensic auditors to supplement the duties of the internal auditors;

(2) Forensic auditors should regularly undergo training and development programs to acquaint them with relevant knowledge and skills for effective forensic auditing;

(3) Forensic auditing should be made mandatory for public institutions by regulatory authorities rather than being voluntary.

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Adding Value to Applied Policy Models: The Case of the WTO and OECD Support Classification Systems

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Both the OECD and the WTO have accumulated systematic data on the magnitude of support going to farmers as a result of farm policies. The datasets are collected for different purposes, but both give a detailed picture of the evolution of these policies. This paper extends recent work on the compatibility or otherwise of the two attempts at policy monitoring by considering the categorization of individual policy instruments in Norway, Switzerland, the US, and the EU. The results show how the OECD dataset, particularly with respect to the link between direct payments and production requirements, complements that of the WTO. Many payments classified in the WTO Green Box require production, raising the possibility that they may distort production and trade. Though the issue of correct notifications to the WTO is the province of lawyers, the implications for modeling and policy analysis are of interest to economists, and the broader question of improving the consistency of the two datasets is of importance in the quest for transparency in the interpretation of changes in farm policies.

Keywords: policy analysis, WTO notifications, Producer Support Estimate (PSE) calculations, farm policy reform

Introduction

This paper examines the potential for applied policy analysis of agricultural and trade policies of a fuller utilization of the information contained in the WTO and OECD support classification systems. This could increase the added value of models for policy makers, government officials, researchers, and other end-users of model results.

The starting point of our paper is two observations related to the current use of the two systems in applied policy models. Firstly, although the OECD support system indicators (embodied in the Producer Support Estimate (PSE) database) are frequently used as a data input for models, less work has been done that makes use of the richness of the classification underlying the policy indicators in the OECD system in such models. Secondly, while there has been much emphasis on the market access and export subsidies components of the Uruguay Agreement on Agriculture (AoA) and the current Doha negotiations, less analytical effort has been devoted to domestic support, the third of the pillars of the AoA. There has been little use of the WTO system of notification of domestic support as an input for policy models, and there is no attempt to develop model-based indicators that reflect WTO notifications of domestic support.

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There may be several reasons why there has not been a more systematic use of the two classification systems for modeling purposes. There currently seems to be a lack of political demand for such modeling. The OECD regularly publishes its PSE calculations, providing commentators with fodder for a news story or two. But governments do not appear to show the same interest in these indicators as they did 20 years ago, and the public discussion of the WTO notifications is virtually non-existent. This may be due to the fact that the WTO domestic support commitments do not seem to restrict policy design for most members. This picture may change if political focus turns towards domestic support, either in the realm of the conclusion of the Doha-round or in case of an increase in the number of dispute settlements based on an alleged faulty notification of domestic support measures.

However, even in the absence of strong demand for the results, there is an active community of scholars who follow in detail the changes in agricultural policy and trade-related aspects of the food system. Economic models help to explain and elucidate such policy developments. But many models treat policy instruments at a fairly aggregated level and are rarely able to make use of the detailed information contained in the classification systems. The level of aggregation of commodities in models also makes it difficult to use detailed OECD or WTO data.

It is widely understood that there are considerable differences in aim, method, and coverage between the OECD and the WTO databases. A casual comparison of the two systems with regard to the conceptual design and the numerical results indicates these differences. This appears to have led to the wrong conclusion that the two systems are incomparable (e.g., Collins-Williams & Wolfe, 2010). In fact, both systems use the same sources (i.e., data on policy expenditure and support prices from national governments) and use the same unit of analysis (i.e., single policy instruments), thus facilitating comparison. The more one thinks of the two systems as being complementary rather than unconnected, the easier it is to define their relevance for policy models.

While the slack demand by politicians for indicator-based policy analysis is out of control for modelers, this paper focuses on the issue of complementarity. It expands on the work of Burfisher (2001), Orden, Blandford, and Josling (2011), and Effland (2011) by applying a measure-by-measure comparison of the two systems.[1] The analysis reveals the close complementarity of the two systems and illustrates how the method may add value on its own (e.g., providing timely pre-notifications of the WTO from the OECD system) and with regard to applied policy models. As a specific use of the approach taken here, we examine the information from four developed countries that illustrate the relationship between the OECD and WTO data, the consistency among the elements of the WTO Green Box, supposedly unrelated to production levels, and the way in which the OECD classifies these policy instruments as to whether they require production. Where there are discrepancies between the two classification systems, we argue that the policy analysts and modelers need to understand the reasons.

The Two Domestic Support Classification Systems Compared

Our comparison is based on publicly available WTO and OECD datasets covering the years from 1995 to 2010 (OECD, 2011; WTO, various). The matching process was accomplished by comparing policy instruments on a measure-by-measure basis. In many cases, the program titles and the monetary volume of the measures are very close so as to facilitate reliable matching. Other cases were less clear-cut. We used our best judgment to identify matching policy instruments where possible: For others that could not be plausibly matched, we placed in a separate category “not covered”.[2]

[1] Although there exists a comprehensive literature on the use of indicators to measure the effect of policies, there is only a small literature that addresses the use of indicators to categorize policies.

[2] The listing of instruments and their matching is shown in an Annex to Mittenzwei and Josling (2012).

The OECD Classification

Table 1 shows the categories of the PSE database. It includes three different components: the “traditional” PSE containing transfers received by farmers from consumers and taxpayers, the General Services Support Estimate (GSSE) that lists measures to support general services provided to agriculture and financed by taxpayers, and the Consumer Support Estimate (CSE) which covers transfers from consumers to producers and from taxpayers to consumers. The “traditional” PSE is the most commonly used measure in the PSE database. We include the GSSE and those parts of the CSE where the support covered in these categories is reported in the WTO notifications. The PSE database contains nine categories of support for the PSE and seven categories for the GSSE. The PSE includes transfers received by farmers from consumers and taxpayers, while the GSSE contains measures to support general services provided to agriculture and financed by taxpayers. The first two PSE categories (A1 and A2) contain payments linked to output, while the next three categories (B1, B2, and B3) cover payments based on input use. Market price support (MPS) is measured by the OECD using actual domestic and world market prices multiplied by eligible production. Hence, MPS measures the value of border protection applied to sustain the (positive) difference between the domestic price and the international price. Other PSE categories (from C to E) cover payments based on current or non-current acreage, animal numbers, receipts, or income. Finally, there are categories for payments based on non-commodity criteria (F) and miscellaneous payments (G).

Table 1

Definition of Categories in the OECD PSE Support Classification System

PSE	
A1	MPS
A2	Output payments
B1	Variable input use
B2	Fixed capital formation
B3	On-farm services
C	Current A/An/R/I*, production required
D	Non-current A/An/R/I*, production required
E	Non-current A/An/R/I*, production not required
F	Non-commodity criteria (long-term resource retirement (F1), a specific non-commodity output (F2), and other non-commodity criteria (F3))
G	Miscellaneous payments
GSSE	
H	Research and development
I	Agricultural schools
J	Inspection services
K	Infrastructure
L	Marketing and promotion
M	Public stockholding
N	Miscellaneous payments
Relevant part of CSE	
Q1	Commodity specific transfers from taxpayers to consumers
Q2	Non-commodity specific transfers from taxpayers to consumers

Notes. *: A, An, R, and I represent areas, number of animals, farm receipts, and farm income respectively. Source: OECD (2011).

The GSSE is divided into seven groups (from H to N) that range from research and development to infrastructure, marketing and promotion, and other services. To simplify the presentation, we refer to these categories as PSE categories H-N, although they are strictly speaking not part of the PSE but belong to the GSSE.[3] For the EU and the US, it was necessary to include in the PSE/GSSE coverage several measures notified to the WTO that were identified as belonging to the CSE sub-groups Q1 (commodity specific transfers from consumers to taxpayers) and Q2 (non-commodity specific transfers from consumers to taxpayers). These included payments made to the processors of food in the case of the EU, while a large share of domestic food aid is recorded in the CSE for the US.

For the purpose of the analysis in this paper, we focus on the distinction between policy instruments for which production is required (PSE categories A1, A2, B1, B2, B3, C, and D) and those for which production is not required (PSE categories E-N). This feature can be used as a first proxy as to whether the policy instrument in question distorts production and/or trade. Basically, if production is required, then it follows theoretically (and from empirical evidence) that production is distorted. And if production is distorted, so will be trade.

The WTO Classification

The WTO notifications on domestic support distinguish among three categories (see Table 2): aggregate measurement of support (AMS), Blue Box, and Green Box. AMS contains policy instruments that are considered to distort production and/or trade.[4] They are further divided into two groups: "MPS" and "non-exempt direct payments (non-ex DPs)". MPS as measured by the WTO must not be confused with MPS as measured by the OECD (Orden et al., 2011).[5] The former represents the putative value of support as a result of the government setting an administrative price higher than the external reference price. There does not need to be a direct link between the administrative price and border protection, although in many cases, border protection is used to sustain the administrative price. A major difference between the two measures is that the OECD measures MPS irrespective of the existence of an administrative price, while the existence of an administrative price is a requirement for a commodity to be included in a member's MPS in the WTO notification. The distinction between MPS and non-ex DPs in the WTO categories conveniently reflects the origin of the support: MPS measures the implicit production-related transfer from consumers to producers as a result of having higher domestic prices compared to the world market, while non-ex DPs are production-related direct payments provided by taxpayers.

Policy instruments covered by the Blue Box are, in principle, distorting, but subject to a production-limiting program so as to reduce or even offset the distortionary effect of the measure. According to Article 6.5 of the Uruguay AoA, Blue Box payments are exempt from reduction commitments if, in addition to be part of a production-limiting program, one of the three criteria listed in Table 2 is satisfied.

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[3] Depending on the context, the term "PSE" is used both to indicate the "traditional" PSE (categories A-G) and to denote the total of PSE and GSSE (categories A-N).

[4] A *de minimis* exemption of 5% of the value of production (for both product-specific measures and non-product-specific measures) reduces the "current total AMS" that is compared to the member's obligations (Brink, 2011). For the sake of comparison with the OECD data, we add back these *de minimis* amounts.

[5] In the EU notifications, a category is defined for MPS (and non-exempt payments) for those commodities (mostly fruits and vegetables) that cannot be easily calculated from administered prices. This equivalent measurement of support is included as MPS and non-exempt payments as appropriate in our tables. The most recent EU notification has removed this element of the AMS calculation.

Table 2

Definition of Categories in the WTO Notification System

AMS: Not exempt from reduction commitments		
Type	Program eligibility	Amount of payment
MPS	Existence of an administrative price	Gap between fixed external reference price and applied administrative price multiplied by eligible quantity of production and net of levies and fees
Non-ex DPs	All direct payments eligible to farmers and not exempt from reduction commitments	
Blue Box: Exempt from reduction commitments and subject to production-limiting program		
Type	Program eligibility	Amount of payment
Direct payment	Payments based on fixed areas and yields	
Direct payment	Payments are made on 85% or less of the base level of production	
Direct payment	Livestock payments are made on a fixed number of head	
Green Box: Exempt from reduction commitments		
Type	Program eligibility	Amount of payment
Decoupled income support	Income, status of producers or landowners, factor use, and production level in a defined and fixed base period	Not related to or based on type or volume of production or prices or factors of production No production shall be required to receive such payments
Income insurance and income safety net programs	Determined by income loss	Solely related to income Up to 70% of income loss
Relief from natural disasters	Formal recognition by government authorities	Income loss or factors of production (incl. land and livestock) up to total loss
Structural adjustment through producer retirement	Facilitate total and permanent retirement of recipients from production	
Structural adjustment through resource retirement	Retirement of land (min. three years) or other resources incl. livestock (e.g., slaughter) from production	Not related to type or volume of production (incl. livestock) or prices Limited to compensate for structural disadvantages
Structural adjustment through investment aids	Facilitate the financial or physical restructuring of farms in response to structural disadvantages	Not related to or based on type or volume of production or prices or factors of production Limited to compensate for structural disadvantages
Environmental programs	Related to production methods or inputs and dependent on the fulfillment of specific conditions under the program	Limited to extra costs or loss of income involved in complying with the program
Regional assistance programs	Limited to designated contiguous geographical areas with definable economic and administrative entities with more than temporary disadvantages	Not related to type or volume of production (incl. livestock) or prices Limited to extra costs or loss of income involved If related to production factors, made at a degressive rate
Other direct payments	Same as for decoupled income support	Same as for decoupled income support

Note. Source: WTO (1994).

Country Examples

We applied the methods described above to four countries[6]: Norway, Switzerland, the EU, and the US for the period from 1995 to 2009. The countries are chosen with respect to the diversity of their agricultural policies and recent developments in their agricultural policy reforms. US agricultural policies commonly

[6] For convenience, we refer to the EU as a "country", although it currently consists of 27 member states. In WTO notifications, the EU makes one submission on behalf of all member states.

operate with prices close to world market levels and use frequently domestic policy instruments that are decoupled from production. There has been a shift in domestic support towards decoupled payments. The EU used to support agriculture through prices higher than world market levels. Starting in the early 1990s, the prices of many commodities have been reduced to world market levels. Farmers have been compensated with direct payments which are now decoupled from production. Switzerland has chosen a similar policy reform path as the EU, but from much higher initial levels. Furthermore, Switzerland has moved to decoupled support much faster than the EU. Norway has barely changed its agricultural policy during the last two decades. The country supports its farmers with prices much higher compared to the world market and with direct coupled payments.

The four countries together accumulate about 60% of global domestic support as measured by the OECD (total of the PSE and the GSSE) and about 80% of global domestic support notified to the WTO (total of current total AMS, Blue Box, and Green Box).

While the OECD updates the PSE database on an annual basis, the WTO depends on the member states to receive notifications.[7] The latest notifications available at the time of data collection have been used in this paper. We have counted only those measures for which there was a non-zero amount for at least one year within the stated period.[8]

The WTO notifications contain about the same total number of policy measures as does the OECD database for Norway and Switzerland, but less than half of the total number of the PSE and GSSE measures for the EU.[9] This is due to both reporting practice and concept design. The PSE database is more disaggregated and requires the listing of single instruments. The WTO notification scheme allows for providing totals for sub-groups of instruments, especially in the Green Box that only distinguishes among the 12 sub-groups. The EU reports on the level of sub-groups, while Norway and Switzerland report more or less single measures. The coincidence of having approximately the same number of measures in the PSE database and the WTO notifications for Norway and Switzerland does not mean that the databases contain the same instruments and that they can be easily matched, as will be explained below. For the case of the EU, this task is even more challenging, as the WTO notifications provide only limited information about which single instruments are aggregated within the sub-group totals.

Single policy instruments were matched by comparing the instruments' names and their annual values. In some cases, both the names and the values are more or less identical and hence easy to match (one-to-one correspondence). Policy instruments have also been matched in cases where the names are identical, while the numbers differ or vice versa. When policy instruments were listed en bloc (as in the WTO Green Box notifications for the EU), policy instruments in the WTO database were allocated to the corresponding single policy instruments in the PSE database (one-to-many correspondence). In the absence of further information, the decision whether or not to match instruments required a subjective decision. Policy instruments not matched were put in a separate group "not covered". The total monetary value of this group consists of those instruments and the (positive or negative) difference of matched instruments where their monetary values did not coincide. The latter is the case if single policy instruments can be clearly identified in both datasets, but the respective values differ. In these cases, the value stated in the OECD database was chosen.

7 See Josling and Mittenzwei (2013) for an account on the timeliness of WTO notifications.
8 There are a few instances of payments with a negative value (e.g., production fees) in both databases.
9 In the case of the US, the WTO notifications identify more categories in the PSE database.

Broadly speaking, a country's most important policy instruments in terms of monetary value and political significance could be more or less easily identified and matched. Problems arose frequently with respect to temporary measures, measures with small monetary amounts, and measures contained in the GSSE (although the GSSE categories have counterparts in the "general services" sub-group of the WTO Green Box). This is especially true for the EU for which hundreds of single measures needed to be matched with only a few categories in the WTO notifications with little additional information. Therefore, we regard our results for the EU as somewhat preliminary. We expect, however, our results to be quite robust even if a revision of the matching process should require some changes.

Norway

The Norwegian notifications to the WTO Committee on Agriculture follow the adopted rules by providing the required support tables. The latest available notification to the WTO Committee on Subsidies and Countervailing Measures (SCM) covers subsidies for the years of 2008-2009 (WTO, 2011a) and follows that committee's rules for all subsidies except those to agriculture. Instead of including the detail of such subsidies, a reference is made to the notifications to the Committee on Agriculture. The SCM notifications, however, do give a short presentation of the major support measures to agriculture covering both market regulation and direct payments and including figures for commodity trade balances.

Figure 1 provides an overview of the PSE database and the WTO notifications for Norway for the period from 1995 to 2009. In general, there are small net differences in the total support measured by the OECD and notified to the WTO across years. There are, however, some major differences in single years, such as 2001 and 2009.

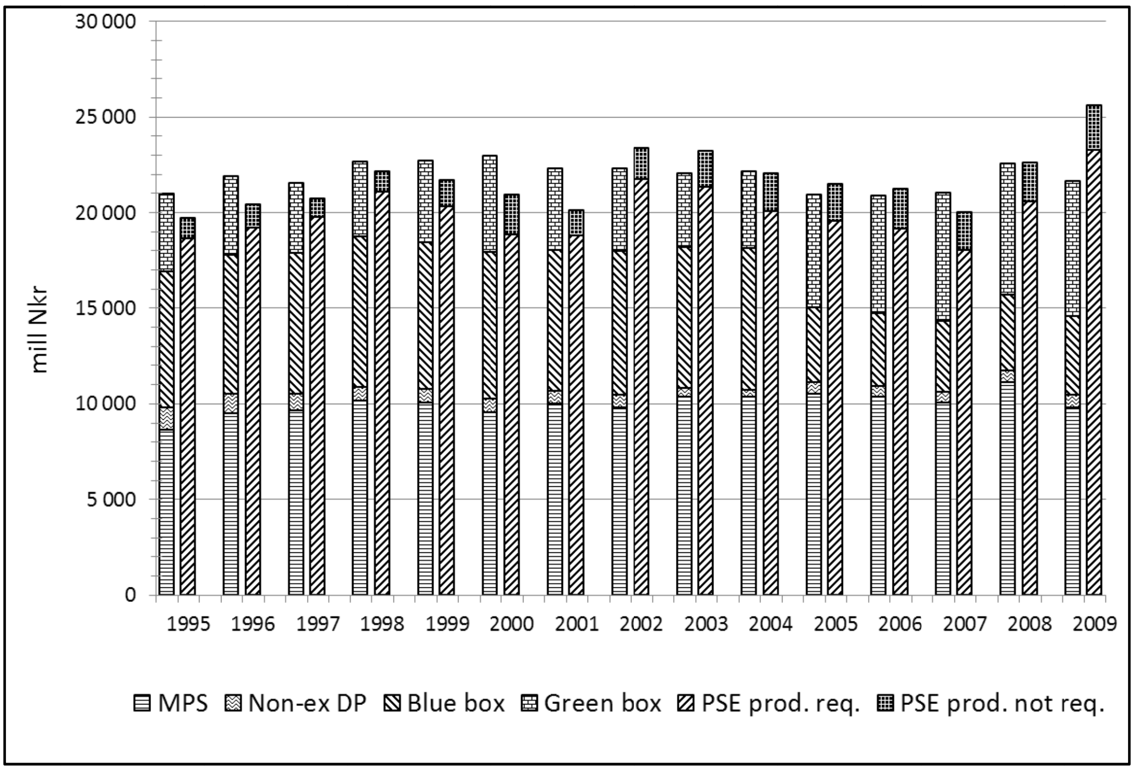

Figure 1. Overview of PSE database and WTO notification for Norway for the period of 1995-2009 (mill. Nkr).

Total support to agriculture in Norway as notified to the WTO consists of about one half production and/or trade distorting support (MPS and non-ex DPs).[10] The other half is made up of Blue Box support and Green Box support. A shift can be observed in 2005. Until 2004, Blue Box support dominates, while from 2005 onwards, Green Box support takes the lion's share. This shift is not, however, reflected in the PSE database as grouped according to the measures' production requirement. Almost all of the support provided to the agricultural sector is implemented in a way that requires production. According to the OECD, only a tiny fraction of support does not require production, and it is apparently much smaller than that which is notified as Green Box support to the WTO.

Figure 2 shows the development in Norway of Blue Box support and Green Box support by PSE categories from 1995 to 2009. Despite some changes, total unconstrained support (i.e., sum of Blue Box and Green Box) stays relatively constant in nominal terms within the entire period. There is a drop in support associated with a major change in the composition of policy instruments from 2004 to 2005, but total support rises again to reach post-2004 levels. The period between 1995 and 2002 was one of political stability in Norway. A policy change induced by the presentation of a White Paper on agricultural policy in 1999 and a change in government in 2001 made some Blue Box support shift from category C to category D. Two years later, this support seemingly shifted from the Blue Box to the Green Box. About half of the amount, however, stayed in category C, while the other half was accounted for in category D. As mentioned above, categories C and D differ with respect to whether payments are based on current (C) or non-current (D) areas/animals/receipts/income, but they both require production in order for farmers to be eligible to receive payments. In this respect, shifting that support from the Blue Box to the Green Box does not seem to have taken away the link to production of that support.

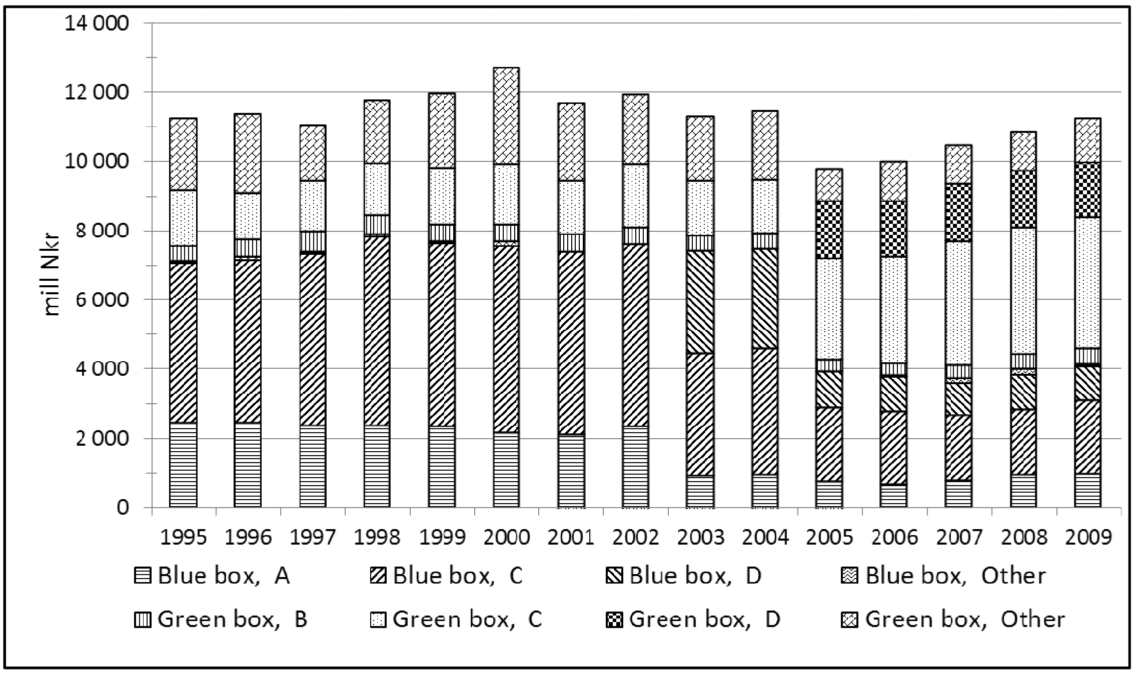

Figure 2. Development of Blue Box support and Green Box support by PSE categories for Norway for the period of 1995-2009 (mill. Nkr).

[10] For more details of Norway's notifications to the WTO Committee on Agriculture, see Gaasland, Garcia, and Vaardal (2011).

Switzerland

The Swiss notifications to the WTO Committee on Agriculture and to the WTO Committee on SCM also follow closely the respective rules by providing the required information. The latest available notification to the Committee on SCM covers subsidies for the years of 2009-2010 (WTO, 2011b). The notifications are, however, limited to commodity specific measures such as market intervention, export refunds, and non-exempt product-specific direct payments. The notifications to the Committee on SCM thus seem to cover only the AMS part of domestic support leaving out all exempt direct payments (WTO Green Box) notified to the Committee on Agriculture.

There is somewhat more discrepancy between the WTO notifications and the PSE for Switzerland when compared to Norway (see Figure 3). This may be caused by the fact that MPS is more dominant in Switzerland and smaller differences between the WTO external reference price and the PSE observed reference price can cause larger overall differences. The picture is somewhat different from that of Norway in another respect: MPS as measured in the WTO notifications has been continuously reduced as a result of an increase in direct payments. Switzerland does not use the Blue Box, but it has nearly all of its direct payments notified in the Green Box. Much of this support is considered related to production in the PSEs, although the share of support that does not require production has considerably increased in both relative and absolute terms between 1995 and 2009. This overview reveals a significant reform towards the decoupling of agricultural support that has taken place in Switzerland over the last two decades. But despite these achievements, there is still a significant amount of Green Box support that is linked to production.

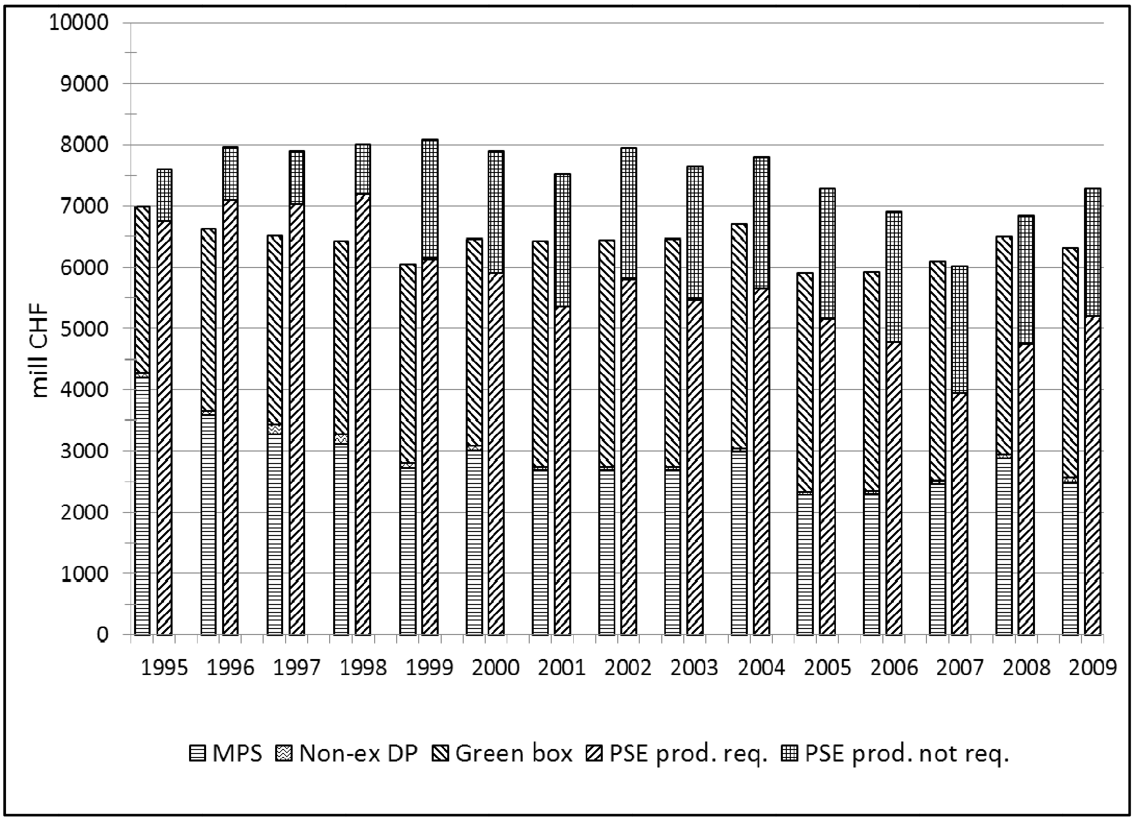

Figure 3. Overview of PSE and WTO notification for Switzerland for the period of 1995-2009 (mill. CHF).

Figure 4 illustrates the development of Green Box support by PSE categories for Switzerland between 1995 and 2009. The figure shows the introduction of non-production-related support in category F in 1999 at the expense of a reduction of support in category C and other categories not explicitly shown in the figure. The figure also reveals that the Green Box contains some payments that are regarded as output payments by the OECD. Their value has significantly increased between 1998 and 2001 and has remained more or less stable thereafter. These payments include direct price support to milk processed into cheese that is notified under the sub-group "regional assistance programs" in the Green Box. To the best of our knowledge, this payment is not regionalized. It is paid to the processors of designated types of cheese who are then encouraged to pay a correspondingly higher milk price to farmers who deliver milk to them. The payment makes up about one quarter of the milk price.

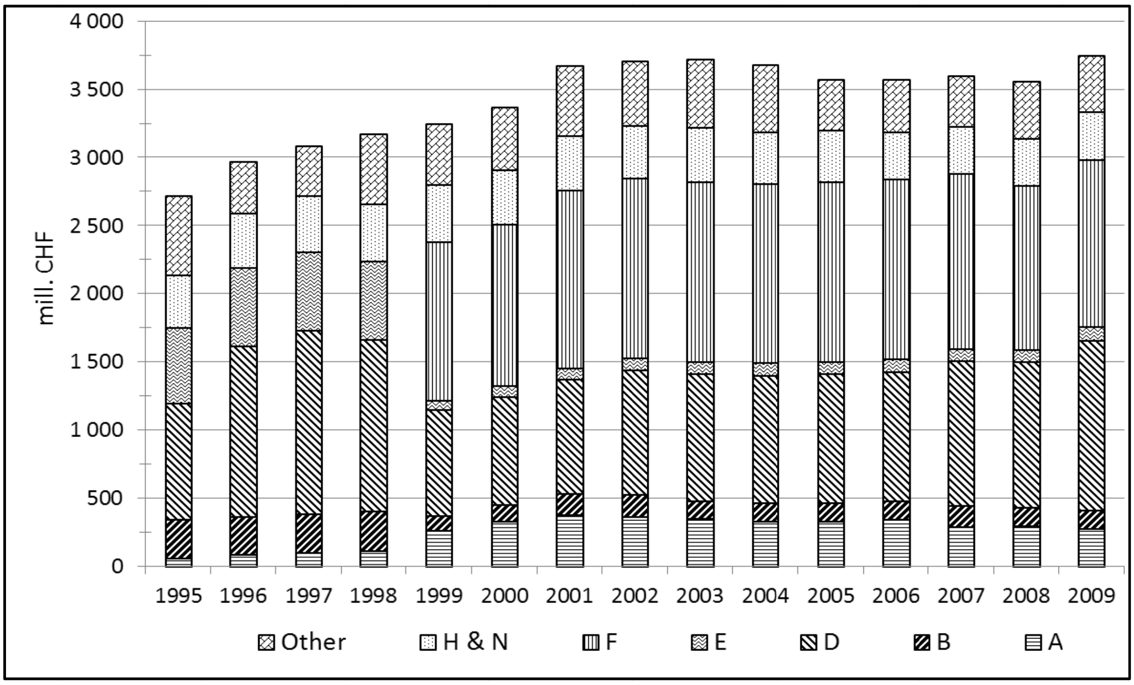

Figure 4. Development of Green Box support by PSE categories for Switzerland for the period of 1995-2009 (mill. CHF).

The EU

The EU notifications to the WTO Committee on Agriculture and to the WTO Committee on SCM also follow the respective rules by providing the required information. The latest available notification to the Committee on SCM for subsidies for years of 2007 and 2008 contains a comprehensive description of the policy instruments covered by the EU's Common Agricultural Policy (CAP) (WTO, 2009a). The description follows the usual division of policy instruments by the EU: (1) export refunds, market intervention, and direct aid financed through the European Agricultural Guarantee Fund (EAGF) (the "first pillar of the CAP"); and (2) direct aid as well as rural development measures financed by the European Agricultural Fund for Rural Development (EAFRD) (the "second pillar of the CAP"). The rural development payments are classified under four different axes: improving the competitiveness of farming and forestry, improving the environment and countryside, improving quality of life in rural areas and encouraging diversification of the rural economies, and the leader axis that aims to co-integrate the different axes.

The SCM notification does not make an explicit reference to the notifications to the Committee on Agriculture, but states that regarding the first pillar of the CAP, "in 2008, 74 per cent of the support provided did have no or at most minimally trade distorting effects" (WTO, 2009a, p. 15). Concerning the second pillar of the CAP, the notification simply reads that there are "no, or at most minimal, trade distorting effects" (WTO, 2009a, p. 49). This claim is followed by a comprehensive list of support measures covered by the second pillar of the CAP, pointing out that payment rates cover extra costs or loss of income of program participation. In some instances, such as for agri-environmental payments and animal welfare payments, the notification states that "where necessary, [the payment rates] may cover also transaction cost" (WTO, 2009a, p. 53), indicating that the rate is set somewhat higher than cost compensation would require. However, the notification does not specify what "transactions" the transaction costs cover and what they amount to. The mention of transaction costs is not mirrored in the notifications of new support measures introduced as part of the CAP's Agenda 2000 (WTO, 1999) or the 2003 Mid-term Review (WTO, 2009b).

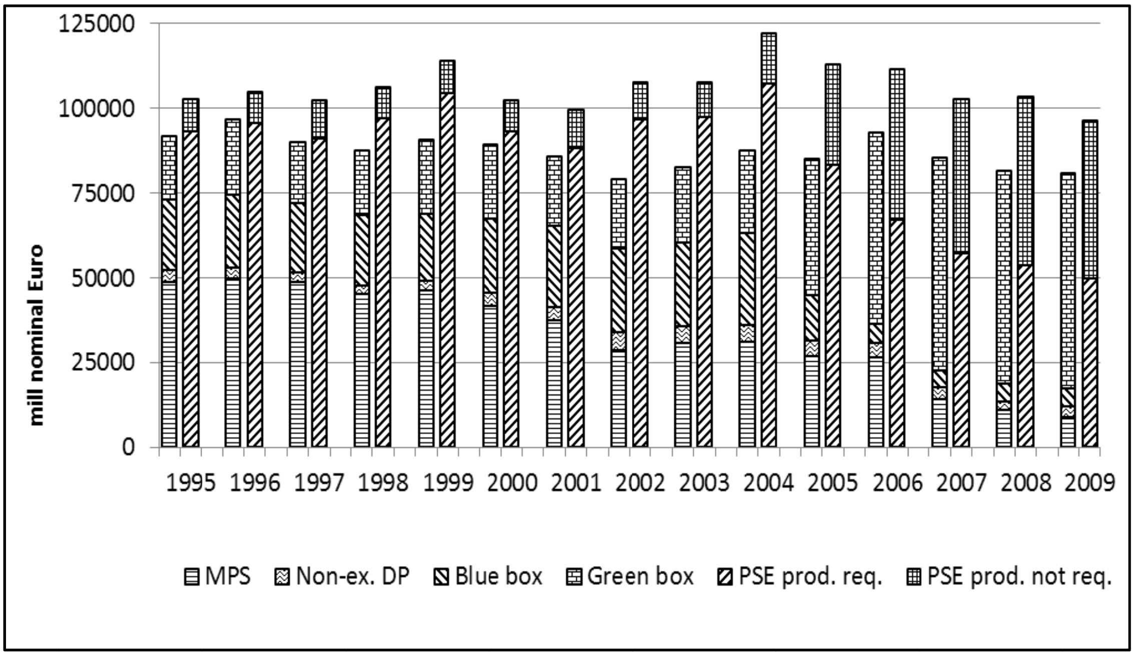

Figure 5. Overview of PSE and WTO notification for the EU for 1995-2008 (mill. Euro).

Among the three European countries (or groups of countries) considered, the EU appears to have undertaken the most significant steps of agricultural reform. This is especially visible when looking at the WTO notifications where MPS was more than halved during the reporting period and was only partly compensated by direct payments, mostly in the form of Green Box support (Josling & Swinbank, 2011). On the other hand, Figure 5 reveals that this development is supported to a much lesser extent by the PSE figures. Here, the total PSE (including the GSSE) stays fairly constant in nominal prices throughout the period. However, from being almost negligible in 1995, support that does not require production accounted for around 50% of the PSE in 2009. This mirrors the shift towards the decoupling of direct payments that also could be inferred from the WTO notifications, but to a much smaller extent. It is apparent from the comparison that the EU's Green Box must be composed of payments that require production, as the level of the Green Box is significantly higher than the level of support that is regarded by the OECD as not requiring production.

The development of Blue Box support and Green Box support in the EU between 1995 and 2009 (see Figure 6) illustrates the major reform steps that took place in the CAP with the introduction of the decoupled Single Farm Payment Scheme (SPS) as part of the Mid-term Review in 2003. Not only did that policy instrument change shift support from the Blue Box to the Green Box (as in the case of Norway), but it also shifted it from category C (requiring production) to category E (not requiring production) (as was not the case in Norway).[11] As a result, the EU has almost abolished its Blue Box support.

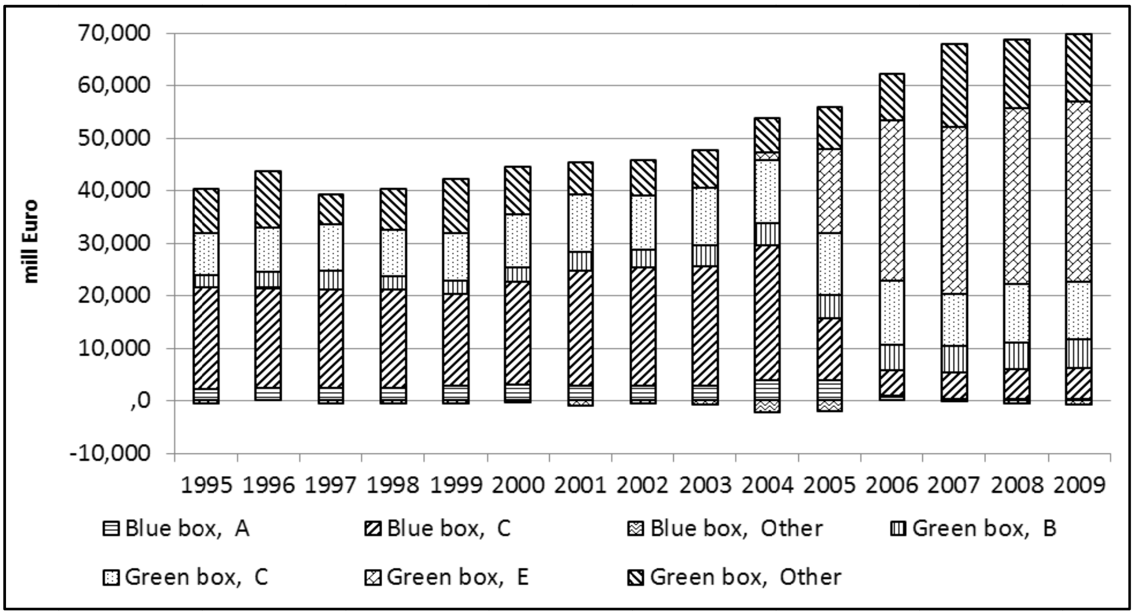

Figure 6. Development of Blue Box support and Green Box support by PSE categories for the EU for the period of 1995-2009 (mill. Euro).

The US

The US notifications to the US Committee on Agriculture and to the WTO SCM Committee also follow the respective rules by providing the required information. The latest available notification to the SCM Committee covers fiscal years of 2007 and 2008 and contains a fair description of major US agricultural policy instruments (WTO, 2010). The notification lists two export programs (Export Enhancement Program and Dairy Export Incentive Program) and 15 domestic support measures including direct payments, price support for milk and sugar, disaster payments, and risk management assistance. Five of the 15 measures are tax-related. Although these programs are clearly targeted towards the agricultural sector, they are not notified to the Committee on Agriculture, but contained instead in the PSE database for the US.[12] The value of the tax programs accounted for a little more than 1% of the notified domestic support notified to the Committee on Agriculture. In 2008, domestic support notified to the SCM Committee (excluding tax measures) was 15% of the notified domestic support to the Committee on Agriculture. A major reason is that domestic food aid has not been included in the US SCM notifications.

[11] Some observers have expressed doubts as to whether the SPS qualifies for Green Box criteria (Swinbank, 2008). However, no WTO member country has so far formally challenged the EU's position on this point.

[12] According to the PSE database, the total value of income tax concessions amounted to $1,372 million in 2008, while the notifications to the SCM Committee assess the respective value to about $1,050 million for the 2008 fiscal year. The decision not to include tax concessions as domestic support in the WTO notifications apparently goes back to the Uruguay Round negotiations on the AoA.

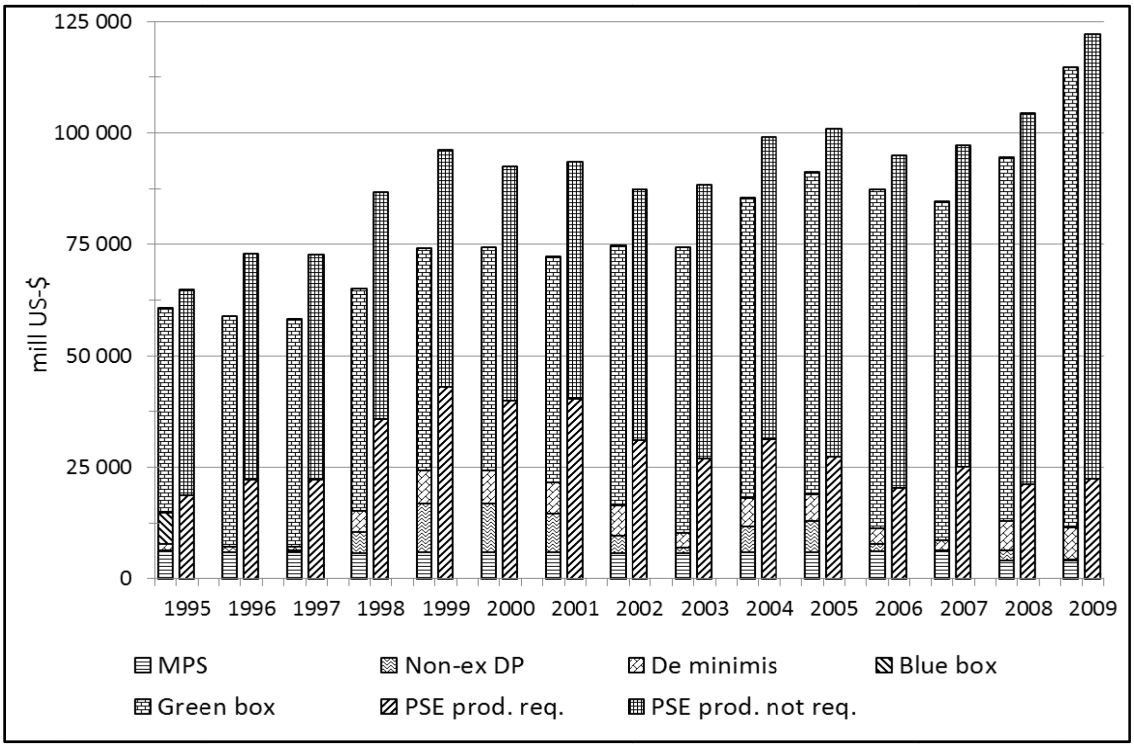

Figure 7. Overview of PSE and WTO notification for the US for the period of 1995-2009 (mill. US$).

Figure 7 compares domestic support to US agriculture as notified by the WTO and as recorded by the OECD. Both measures note a significant increase in support between 1995 and 2009. While there is a clear similarity in the relative development of support between 1995 and 2009, the absolute numbers differ. A period of relative stability between 1999 and 2003 is followed by peaks in 2004 and 2005, a slight reduction until 2007, and finally a considerable increase in support starting in 2008. WTO Green Box support and support not requiring production (i.e., the bars labeled “Green box” and “PSE prod. not req.” in Figure 7) dominate the overall picture. But there is still an indication that the value of production-related support, as reported in the PSE database, exceeds the total amount of market price support, non-ex DPs, and Blue Box support. This hints at the fact that some production-related support must be notified within the WTO Green Box.

The dominance of domestic food aid within the WTO Green Box is illustrated in Figure 8. The various food programs occupy large parts of PSE category L and CSE category Q2. Their shares of Green Box support stay above 60% through the entire period with a peak in 1995 of 80%. In 2009, domestic food aid corresponded to 75% of Green Box support. Apart from domestic food aid, there is notable support in PSE categories B (input subsidies) regarding as related to production. Unlike Switzerland and the EU, we were not able to identify any output-related payments among the US Green Box notifications.

The US appears to offer an example of rather consistent notification to the two institutions (see Figure 8). Non-ex DPs are found in those PSE categories containing programs that require production, while most Green Box support is found in PSE categories covering programs not requiring production. Green Box support regarded as provided through programs requiring production is concentrated in PSE categories B2 and B3. These categories include general services and environmental programs. A share of non-ex DPs in PSE category C is made up by Average Crop Revenue Election (ACRE) payments and disaster payments. As will be

shown below, there seems to be some flexibility as to whether disaster payments are notified as Green Box measures or in the group of non-ex DPs.

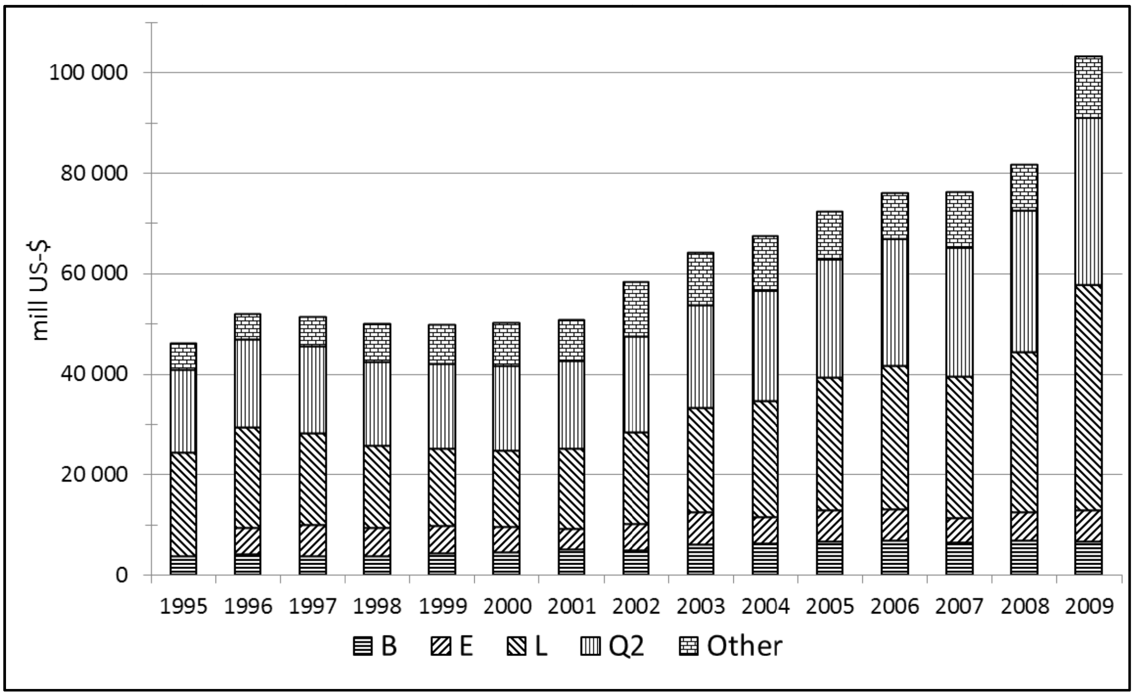

Figure 8. Development of Green Box support by PSE categories for the US for the period of 1995-2009 (mill. US$).

Disaster payments have frequently been notified to the WTO as Green Box payments and as non-ex DPs, while the OECD lists them all together in PSE category C. In 1999, disaster payments were almost evenly allocated to the Green Box and to non-ex DPs. This picture has changed considerably, as most of the disaster payments in 2009 were notified as non-ex DPs and only a small amount remained in the Green Box. It is somewhat unclear whether this is the result of significant changes in the programs, or whether it comes as a result of a change in notification practices. The WTO notification for 2009 consists of only one program (non-insured crop disaster assistance program by the Farm Service Agency) worth $95 million. This program is matched with the PSE support measure “crop disaster payments (ad hoc)” that has a value of $550 million.

The WTO Green Box and Production Requirements

The basic notion of the Green Box is to shelter from support reductions such programs that have little or no effect on production. The provision of public goods would often come within this category. The aggregate effect could still be to increase production from the sector even if the size of any producer’s payment did not depend on his/her production. But the legal manifestation of this criterion is by no means clear-cut. Box criteria and the production requirements are summarized in Table 3, which also identifies the categories in the notification format used by WTO members.[13]

[13] It bears repeating that for a measure to qualify in a particular Green Box category, the measure needs to meet all the criteria in the category, i.e., it is not enough that the measure can be described as being of the kind identified in the heading of the category.

Table 3

Categorization of Domestic Support Measures in the WTO Green Box

Category	Appearance in AoA Annex 2	Appearance in WTO notification requirement and format	Policy-specific criteria	
			Payment amount: "Not be related to, or based on, the type or volume of production"	Payment eligibility: "No production shall be required in order to receive such payments"
General services	Para. 2	(a)		
Public stockholding	Para. 3	(b)		
Domestic food aid	Para. 4	(c)		
Decoupled income support	Para. 6	(d)	X	X
Income insurance and income safety net programs	Para. 7	(e)	X	
Natural disaster relief	Para. 8	(f)		X[a]
Structural adjustment through producer retirement	Para. 9	(g)		
Structural adjustment through resource retirement	Para. 10	(h)	X	
Structural adjustment through investment aid	Para. 11	(i)	X	X[a]
Environmental programs	Para. 12	(j)		
Regional assistance programs	Para. 13	(k)	X	
Other direct payments	Para. 5[b]	(l)	X	X

Notes. [a]: Regarding future production. [b]: "Other direct payments" are defined in Para. 5 as payments "other than those specified in paragraphs 6 through 13", and all except one of the criteria of Para. 6 apply to those payments. Source: WTO (1994; 1995).

The conditions under which a policy is exempted from reduction are given in AoA Article 6, Paragraph 1 (WTO, 1994). This article, inter alia, refers to Annex 2 of the Agreement (the Green Box) which specifies that domestic support measures "shall meet the fundamental requirement that they have no, or at most minimal, trade-distorting effects or effects on production" (WTO, 1994, p. 59). This would appear to exclude from the Green Box any payment that has any impact (in either direction?) on production. However, the paragraph continues, "accordingly, all [green box] measures shall conform to the following basic criteria" (WTO, 1994, p. 59): (1) Support is provided by a publicly-funded government program; and (2) It does not have the effect of providing price support to producers. In addition, specific criteria and conditions apply for each of the 12 sub-categories of the Green Box.

Two of these criteria are of special interest with regard to production requirements and production-based payments. The first of these criteria requires that the amount of payment must not be related to or to be based on the type or volume of production, prices or factors of production. This criterion applies to payments under the headings related to decoupled income support, natural disaster relief, resource retirement, investment aid, regional assistance, and to other direct payments. The second criterion states that no production shall be required in order to receive the payment. This applies only to decoupled income support and "other direct payments" not covered by the specific categories. The criteria for the other categories of payments do not include the requirement that the payment, in order to qualify for the Green Box, must not require production: A payment can be unrelated to production volume or type and still be paid only if some production occurs. In fact, many programs necessarily imply that there is some "requirement" for production: Governments are unlikely to pay a subsidy for meeting some environmental production standards and then make payments even in those cases where there is no production. Some production is de facto required to receive that payment. In these cases, the

eligibility for receiving a payment (and the size of the payment) is defined with reference to, for example, the extent of income loss due to natural disasters, structural or regional disadvantages, or environmental program compliance.[14] And, for another group of Green Box categories (such as general services and food aid), there is no payment to producers, and hence no opportunity to place a restriction on payments on the basis of production.[15]

The OECD database identifies programs that have specific production requirements. The focus is on the distinction between policy instruments for which production is required (PSE categories A1, A2, B1, B2, B3, C, and D) and those for which production is not required (PSE categories E-N, all GSSE categories). This feature was presumably introduced as an indication as to the extent to which the policy instruments in question might distort production and hence trade: This is an important part of the process of quantitative evaluation of policy change in OECD members.[16] However, the link with the WTO Green Box criteria discussed above is not transparent. Some payments can fall under the OECD heading of "no production required" and still be ineligible for the WTO Green Box.[17] Thus, the most interesting link with the OECD categories is in the criteria for "decoupled income support". The OECD category of "no production required" seems to cover cases where production is not required for eligibility and the payments are not related to production. Both these conditions must be met in order to place these payments under AoA Annex 2, Paragraphs 5 or 6.[18]

Using the OECD database for the four countries in our study and matching individual policy instruments with payments notified in the WTO Green Box reveal the extent of this grey area among production requirements, production-based payments, and Green Box eligibility (see Table 4). Payments for which a match was found and which were classified by the OECD as "production required" were notified in the six (out of the 11) categories of Green Box payments that prohibit payment on the basis of production.[19] As mentioned above, it is not inconsistent to require production but base the payments on other criteria. But in the cases of "other direct payments" (Paragraph 5) and "decoupled income support" (Paragraph 6), there is no such ambiguity. Norway and Switzerland each notified significant payments that appear, a priori, to be ineligible for the Green Box. For example, NOK 1.261 billion or 100% of Norway's payments in the category

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[14] It is, however, difficult to reconcile the "fundamental requirement" that there be no (or only minimal) effect on production with the specific criteria that allow compensation for losses or for regional cost disadvantages.

[15] There has not yet been a panel ruling on the interpretation that countries have put on these criteria. The US cotton case did touch on Green Box requirements with respect to production, in part to address the US claim that the cotton subsidies were sheltered by the Peace Clause. The panel considered the question of restrictions on the eligibility for payments that precluded some types of production (vegetables and wild rice). Their opinion was that these restrictions meant that the payments were in fact tied to production. This did not address the issue of whether, if any production is required, the Green Box conditions are violated.

[16] The modeling of the quantitative effect of farm policies relies crucially on the extent to which direct payment policies give an incentive to producers. There is an extensive literature that explores the production impact of decoupled payments (reviewed in Abler & Blandford, 2007). The broad conclusion of these studies is that there are a number of mechanisms by which direct payments unrelated to output could in fact act as incentives to producers. These include a wealth effect, an income effect, and an effect on the rate of exodus from the sector.

[17] A prominent example is the counter-cyclical payments in the US: No current production is required to receive such payments, as they are paid on base acreage. But the counter-cyclical payments do not qualify for the Green Box, as they are triggered by and related to price movements.

[18] The term "decoupled" income support is used in the heading of Annex 2, Paragraph 6 (WTO, 1994, p. 61), but not defined. The OECD uses the term "decoupled" in a "weak" form to indicate that production would be the same with or without the support and in a "strong" form implying that changes in the level of income support will not affect production. Both are presumably subsumed by the WTO "fundamental requirement" for Green Box eligibility that payments have no, or at the most minimal… effects on production (Annex 2, Para. 1, WTO, 1994, p. 59).

[19] Values above 100% indicate differences in reported values in the two classification systems or possible inconsistencies in the matching process.

"other direct payments" were regarded as requiring production by the OECD. In Switzerland, 29% of the payments notified in the category that explicitly states that production must not be required were regarded in the OECD classification as requiring production. In the case of the EU, the amount of such ambiguous payments is small relative to the total payments notified under Paragraphs 5 and 6: For the US, there appeared to be no such conflicting notification.

Table 4

Amount of Payments Classified as Requiring Production by the OECD and Notified as Green Box Payments to the WTO in 2007, by Green Box Category (Million Units of National Currency), and as Share of All Support in That Green Box Category (%)

Category (AoA Annex 2 paragraphs)	Norway		Switzerland		EU		US	
	Mill. NOK	%	Mill. CHF	%	Mill. EURO	%	Mill. $	%
Decoupled income support (Para. 6)			509	29	277	1		
Other direct payments to producers (Para. 5)	1,261	100						
Natural disaster relief payments (Para. 8)	36	119			1,367	141	550	561
Structural adjustment through investment aids (Para. 11)	370	59	113	135	3,651	48		
Environmental protection (Para. 12)	4,084	98	411	73	4,040	64	1,435	32
Regional assistance programs (Para. 13)			722	98	4,107	91		
Total Green Box (Paras. 5, 6, 8, 11, 12, and 13)	5,751	81	1,755	47	13,442	24	1,985	2

Note. Source: Own calculation based on OECD (2011) and WTO (various).

Though the cases of decoupled income support and other direct payments to producers (AoA Annex 2, Paras. 5 and 6, WTO, 1994) are the most clear-cut examples of where the OECD data can help to focus on the consistency of WTO notifications, other categories of the Green Box also raise issues that could be explored, including the compatibility with the "fundamental requirement" of Annex 2, Para 1 that payments have no, or at most minimal,… effects on production.[20] For European countries, typical examples of Green Box measures that require production are environmental protection programs, regional assistance programs, and investment aids. For instance, the Swiss Payment for the Holding of Roughage Eating Farm Animals (PHREFA) accounts for one third of the total Green Box support notified by Switzerland. The OECD has put PHREFA in PSE category C that covers payments made on current animal numbers for which production is required. This would seem to be inconsistent with the criteria for the Green Box. Two other Swiss programs, the Milk Price Supplement for Cheese Production (MPSCP) and the Payments for Non-Silage Feeding of Cows (PNSFC), have been notified as Green Box payments in the category "regional assistance". But these are classified by the OECD as output payments and hence depend on "the type and volume of production". Examples of the EU programs notified in the Green Box include (regional) support to less favored areas (LFA), investment aids, and agri-environmental support. These are considered as requiring production by the OECD, thus at the least raising the question of compatibility with the "fundamental requirement" in Para. 1 of Annex 2 (WTO, 1994).

[20] Discussion of the compatibility with the fundamental requirement raises issues beyond the scope of this paper, such as the import of the word "accordingly" that links the fundamental requirement with the "basic criteria" in the rest of the paragraph.

Examples from Norway are the National Environmental Program and the Vacation and Replacement Scheme that reimburses farmers for the costs of hired labor during vacation and illness.[21]

Conclusions

Our analysis contributes to the emerging literature that attempts to integrate domestic support and commitment levels into applied policy models (e.g., Jensen, Urban, & Brockmeier, 2009). The method used in the paper establishes the close similarity of the WTO and OECD datasets, despite the wide diversity of agricultural policies applied by the countries investigated. In particular, the method allows the following contributions.

First, it makes it possible to mirror the past and to produce pre-notifications of WTO domestic support levels through the use of the readily available OECD dataset. This is of particular importance, as the OECD updates its dataset on an annual basis, while the WTO depends on their members to be able to publish notifications. The pre-notifications of WTO domestic support levels may give valuable information to policy makers about the likely changes in countries' agricultural policies.

Second, the OECD classification of agricultural policies serves policy models much better than the WTO notifications, because the OECD classifies policies according to their linkage to commodities or factors of production, which makes the dataset easily accessible for applied agricultural policy models. This opens up possibilities for various analyses in applied policy models. The analysis of the economic effects of further restrictions on WTO domestic support commitments constitutes an important example. With domestic prices in the US and the EU at world market prices, further trade liberalization in agriculture has to stem from a reduction in domestic support. For that reason, a policy model's ability to analyze effects of further restrictions on WTO domestic support commitments is deemed necessary. Another example would be the rather conceptual analysis of the potential production and trade-distorting impacts of Blue Box measures and Green Box measures. Care should be taken not to assume that there is any legal implication of a "production required" classification in the OECD database in terms of the correct notification in the WTO Green Box. Nevertheless, the distinction between "production required" and "payments on the basis of production" needs to be carefully considered in the economic modeling of direct payments.

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[21] Similar anomalies show up in the matching of instruments from the OECD categories to the notifications in the Blue Box. Norway, for instance, notifies regional deficiency payments to meat producers in this category. In order to be eligible for the Blue Box, payments have to be "under production-limiting programs" (along with other criteria). Although there exists an upper limit on the amount of meat that is eligible for the payments, it is not binding. The regional deficiency payments to meat differ in this respect from regional deficiency payments to milk, as the latter are made under a (binding) milk quota scheme. Consequently, the OECD considers the milk deficiency payments as being subject to a production limit, while it does not consider such a production limit being in place for the meat deficiency payments.

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The Relationship Among E-service Quality Dimensions, Overall Internet Banking Service Quality, and Customer Satisfaction in the USA

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The purpose of this paper is to examine the relationships of e-service quality dimensions with overall internet banking service quality, and its effect on customer satisfaction in the USA banking industry. The proposed instrument dimensions are identified based on a questionnaire survey conducted in the US. Based on an extensive review of literature, this paper proposed eight dimensions for measuring overall internet banking service quality and its subsequent effect on customer satisfaction. Also, this research uses American internet banking users as survey targets for its empirical studies. The results show significant relationships among the e-service quality dimensions (efficiency, fulfillment, system availability, privacy, assurance/trust, site aesthetics, responsiveness, and contact), overall internet banking service quality, and customer satisfaction. Little attention has been given in the literature to understanding of the e-service quality dimensions that influence overall internet banking service quality and the specific outcome of customer satisfaction. This paper empirically examines the relationships among the eight e-service quality dimensions, overall internet banking service quality, and customer satisfaction. The findings are important to enable bank managers to have a better understanding of the key e-service quality dimensions of internet banking that affect customer satisfaction. The primary limitations of this study are the scope and size of its sample.

Keywords: internet banking, e-service quality, customer satisfaction

Introduction

Owing to the rapid global growth in the internet and information technology, many organizations around the world have transformed their services from the traditional services to electronic means (Alanezi, Kamil, & Basri, 2010). In order to provide customers with efficient banking services, information technology and the internet become more and more important for banks in order to deliver financial services. Banks have begun to set up their own web portals to provide internet services and gain the advantages of unlimited time and areas, fewer costs, and more customers from internet banking. The service quality is an important tool for banks to face competition. It is inevitable for each banking institute to utilize good service quality, in order to differentiate itself from other service providers (Ho & Lin, 2010).

Delivering a superior quality of service as compared to that of competitors offers banks an opportunity to

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achieve competitive differentiation (Ranganathan & Ganapathy, 2002). Delivering high-quality services is a prerequisite for achieving customer satisfaction, and only through customer satisfaction would the company be able to attract and retain loyal customers. Because of the highly undifferentiated products and services, which financial organizations and specifically banks offer, service quality becomes a main tool for competing in this marketplace (Kenova & Jonasson, 2006).

The research, which investigates the criteria customers use in evaluating internet banking service quality and their satisfaction with the overall banking service quality, is still a relatively new area (Jayawardhena, 2004; Sohail & Shaikh, 2008). It is critical for banks to understand the criteria that consumers use to evaluate internet banking services and how these impact their perceptions of overall internet banking service quality and satisfaction with e-service and banking overall (Rod, Ashill, Shao, & Carruthers, 2009).

It is then really important for internet banking providers to learn more about their customers’ perceptions of the online banking service quality and the attributes the customers find essential for a quality financial service delivery on the internet. Customers have some expectations and criteria when they judge whether the provided e-banking service is satisfactory or not. This is the only way for the banking industry to improve their online services and gain competitive advantages in the marketplace.

The current research aims to investigate the impact of the dimensions of e-service quality on the overall internet banking services and to examine the relationship between it and customer satisfaction. The selected sample is from the banking industry in the USA.

The remainder of this paper is organized as follows: The next section starts with a literature review of the topic, which is then followed by discussions of the research method and results of the empirical study that was conducted in the American banks. The final section presents the discussion, conclusions, and research limitations.

Literature Review

Internet Banking

Internet banking services have undergone fundamental changes in the early 1990s. With the rapid growth of information technology and electronic services, banks began to revive or initiate their internet banking services. In the late 1990s, many anticipated that internet banking services, such as viewing banking transactions and bill payments, would become industry standards. These expectations were realized in a much shorter time than expected. The rapid expansion of internet banking is most noticeable in the developed countries such as the USA, where the availability of computers and easy access to the internet have made it easier for banks to adopt internet banking (Jenkins, 2007).

The implementation of e-banking, such as internet banking and the use of computer-based office banking software, holds several obvious advantages for both customers and banks. It improves banks’ profit levels through the reduction of both variable and infrastructure costs, provides a source of differentiation and competitive advantage, provides global reach, and adds another communication and feedback channel. The reasons for e-banking infrastructure investment include the promise of transaction cost reduction by limiting overheads associated with bank staff and bank branch costs. As for customers, e-banking services allow them to have a better overview of their banking businesses and help them to manage their banking transactions more conveniently and efficiently.

Additionally, customers who use internet banking prove to be involved in more banking transactions, which is beneficial for banks themselves. Internet banking provides better services to customers who increasingly desire 24-hour banking. It also increases customer satisfaction through the reduction of waiting time (Lichtenstein & Williamson, 2006; Hernandez & Mazzon, 2007; K. Pikkarainen, T. Pikkarainen, Karjaluoto, & Pahnila, 2006; Kenova & Jonasson, 2006; Shamdasani, Mukherjee, & Malhotra, 2008).

Banks introduced internet banking as an assurance to their current customers that they will be able to continue developing their services in the future and maintain a competitive quality of service, in an effort to avoid losing them to other banks (Jenkins, 2007).

Electronic Service Quality (E-S-QUAL)

The concept of e-service quality is still at its early stages, and it has clearly become an important issue in recent years (Lee & Lin, 2005; Hongxiu & Reima, 2009). E-service quality not only can provide organizations with competitive advantages in the online environment, but also can involve clients in the product process through customers' feedbacks, client relationships, and overall satisfactions (Santos, 2003).

By the nature of e-services, the very fact that they are delivered over the internet poses some challenges to the service providers. Initially, there is the loss of contact among the service providers' employees, and customers are missing. In addition, the service delivery setting has completely changed. In the case of e-services, the service websites become the "moment of truth" between customers and the banking institutes (van Iwaarden, van der Wiele, Ball, & Millen, 2003).

E-service quality can be classified as the key determinant of the success or failure of online organizations. E-service has been defined as a web-based service, or an interactive service that is delivered on the internet (Ghosh, Surjadaja, & Antony, 2004). E-services can be defined as deeds, efforts, or performances whose delivery is mediated by information technology (Rowley, 2006). It can also be defined as overall consumer evaluations and opinions about the excellence of e-service delivery in the virtual marketplace. Quality e-services can provide the online organization with competitive advantages by improving the organization's performance and clients' satisfactions (Alanezi et al., 2010). As a result of that, the quality of e-banking services can play an enormous role in improving e-banking efficiency and profitability as well as increasing customers' satisfactions.

E-SQ (E-S-QUAL and E-recovery Service Quality (E-RecS-QUAL)) Instrument for Measuring Online Services Quality

E-SQ instrument is an instrument developed specifically for measuring online services (e-services) quality. It includes two scales: the basic E-S-QUAL scale, consisting of four dimensions with 22 attributes, including efficiency, fulfillment, system availability, and privacy, and the E-RecS-QUAL scale which consists of three dimensions with 11 attributes, including responsiveness, compensation, and contact (Parasuraman, Zeithaml, & Malhotra, 2005).

Four core dimensions of E-S-QUAL scale are efficiency, fulfillment, system availability, and privacy. Efficiency defines the customers' ability to effectively access the website, find their desired product and related information, and check it out with minimal effort. Fulfillment refers to a company's actual performance in contrast with what is promised through the website and incorporates accuracy of service promises, such as having products in stock and timely delivery. System availability is a technical function of the website, such as the extent to which it is available and functioning properly. Finally, privacy refers to the company's will and ability to maintain the integrity of customer data (Zeithaml, Parasuraman, & Malhotra, 2002).

The E-RecS-QUAL scale consists of 11 items on three dimensions: responsiveness, compensation, and contact. These are mainly concerned with the situations which arise when a problem needs to be solved and when "personal service" is required. Responsiveness defines the company's ability to provide appropriate problem-solving mechanisms (online complaint handing, handling returns mechanisms, and online guarantees). Compensation involves money-back guarantees and return of shipping and handling costs. Contact points refer to customers' need to speak to a "live" customer service agent online or on the phone, and define the company's ability to offer such support in real-time via online or other means of communication (Parasuraman et al., 2005).

E-service Quality in Banking

The increased importance of information and communication technology for the delivery of financial services has led to the growing interest of researchers and managers in e-banking quality issues (Jayawardhena, 2004). Consequently, there has been a range of studies that had attempted to identify the key dimensions of e-service quality associated with online banking, to enhance its service performance and improve its overall service quality that will lead to increased customer satisfaction.

Jayawardhena (2004) determined that customers emphasize the importance of downloading speed, navigability, and search feature efficiency. This study concluded that banks should focus on building trust through ensuring the security and privacy of customer information. In the context of online retail brokerage services, Chen and Hitt (2002) established that system quality, product line breadth, and quality impact consumer's switching behavior and retention.

On the other hand, exploratory research done in the context of online retailing by Jun, Yang, and Kim (2004) revealed that reliable/prompt responses, attentiveness, and ease of use had considerable impacts on both customers' perceived overall service quality and satisfaction. It also indicated that there is a significant positive relationship between overall service quality and satisfaction.

An additional study carried out by M. Joseph, McClure, and B. Joseph (1999) has uncovered six underlying dimensions of online banking service quality: convenience/accuracy, feedback/complaint management, efficiency, queue management, accessibility, and customization.

In the context of online bank websites, Waite and Harrison (2002) have found seven key factors that affect consumer satisfaction: transaction technicalities, decision-making convenience, interactive interrogation, specialty information, search efficiency, physical back-up, and technology thrill.

In another study, Herington and Weaven (2009) explored the measurement of e-service quality in the financial services setting. They found four dimensions relating to e-banking service quality including: personal needs, site organization, user-friendliness, and efficiency.

In this research being presented here, the researcher has chosen to modify the E-S-QUAL and E-RecS-QUAL models established by Parasuraman et al. (2005). These known models are generic and parsimonious scales. The modification was introduced to better suit the purpose of the research, the nature of the studied banking industry, and its service setting. The researcher added two dimensions to the models above and dropped one dimension from the E-RecS-QUAL scale.

The two dimensions added are: assurance/trust and site aesthetics. The researcher finds the issue of assurance/trust (credibility) of high importance, especially when financial services are concerned. The assurance attribute is the term used in the field of services to describe the impression that a supplier of customer

services projects in terms of security and credibility (Parasuraman, Zeithaml, & Berry, 1988). In an online environment, security is probably better defined when it is contemplated alongside the notion of privacy (Wolfinbarger & Gilly, 2003).

Credibility is thus understood to be essential when assessing e-service quality, and this is demonstrated by the fact that it is present in much of the work on online service quality (Liu & Arnett, 2000; Yang, Jun, & Peterson, 2004; Zeithaml et al., 2002; Yoo & Donthu, 2001; Wolfinbarger & Gilly, 2003; Long & McMellon, 2004; N. Madu & A. Madu, 2002; Jun et al., 2004; Cox & Dale, 2001; Jayawardhena, 2004; Jun & Cai, 2001). The dimension of assurance includes incorporating security elements and communicating them to customers, guaranteeing confidentiality, and confirming the purchase. In short, it implies conveying a secure and reliable image.

The second dimension added in this study is the importance of website aesthetics to customers while evaluating the internet services of the banking institutes. This was earlier emphasized by studies presented by Santos (2003), Jun and Cai (2001), Kim and Stoel (2004), Yoo and Donthu (2001), and N. Madu and A. Madu (2002).

Finally, the researcher here decided not to include the compensation dimension of the E-SERVQUAL scale in measuring the quality of online banking services. As reported by Parasuraman et al. (2005) and M. Kim, J. Kim, and Lennon (2006), this dimension is not easy to measure, as there is neither enough evidence nor relevant data on the matter.

The author here next examined the relationship between overall internet banking service quality and customer satisfaction.

The work of Yang et al. (2004) observed overall internet banking service quality as a factor of two items: overall online service quality of the bank and overall perception of the bank as a good supplier of banking services.

In this study, customer satisfaction was also measured with four instruments: overall experience and satisfaction with the following four items: the bank's services, internet-based transactions, products/services offered by the bank, and the bank in general (Yang et al., 2004).

Methodology of the Study

A questionnaire was designed for the purpose of this study. It consisted of two sections. The purpose of the study was presented in the headline of the questionnaire, to help respondents achieve a better understanding of this research.

The first section gathered information on the respondents' perceptions of the service quality of internet banking services. A 5-point Likert scale (1: strongly disagree; 2: disagree; 3: neutral; 4: agree; and 5: strongly agree) was used to assess the extent to which participants agreed with the performance statements. The second section collected information pertaining to the respondents' profiles including their gender, age, length of internet banking usage, and frequency of internet banking usage.

The survey questionnaire was designed and randomly distributed to potential respondents from the public community who use internet banking services in California.

Hypotheses

To have a disciplined guidance to the inquiry, the following hypotheses were formulated and tested:

H1: Efficiency is positively related to overall internet banking service quality.

H2: Fulfillment is positively related to overall internet banking service quality.

H3: System availability is positively related to overall internet banking service quality.

H4: Privacy is positively related to overall internet banking service quality.

H5: Assurance/trust is positively related to overall internet banking service quality.

H6: Site aesthetics is positively related to overall internet banking service quality.

H7: Responsiveness is positively related to overall internet banking service quality.

H8: Contact is positively related to overall internet banking service quality.

H9: Overall internet banking service quality is positively related to customer satisfaction.

Variable Measurement

E-service quality dimensions (independent variables). E-service quality dimensions, which are put forward in this study as independent variables, are as follows:

(1) Efficiency: (a) I am able to get on the site quickly; (b) It is easy to find what I need on the website; (c) It is quick to complete a transaction through the bank's website; (d) Using the bank's website does not require much effort; and (e) The organization and structure of online content are easy to follow.

(2) Fulfillment: (a) When the bank promises to do something by a certain time, it does so; (b) My online transactions with the bank are always accurate; (c) The service delivered through the bank's website is quick; and (d) The bank's site makes accurate promises about the services being delivered.

(3) System availability: (a) The site is always available for business; and (b) This site launches and runs right away.

(4) Privacy: (a) The bank does not misuse my personal information; and (b) I feel safe in my transactions with the bank.

(5) Assurance/trust: (a) I have confidence in the bank's service; and (b) The bank's name is well-known and has a good reputation.

(6) Responsiveness: (a) The bank gives prompt responses to my requests by e-mail or other means; and (b) The bank quickly resolves problems I encounter with my online transactions.

(7) Contact: (a) The bank is easily accessible by telephone; and (b) The site has customer service representatives available online.

(8) Site aesthetics: The website design is aesthetically attractive.

Internet banking service quality and customer satisfaction (dependent variable). Internet banking service quality and customer satisfaction (dependent variable) are as follows:

(1) Overall internet banking service quality: (a) Overall, the online service quality in the bank is excellent; and (b) Overall, the bank comes up to my expectations of what makes a good online banking supplier.

(2) Customer satisfaction: (a) Overall, I am satisfied with my experience of the bank's service; (b) Overall, I am satisfied with the bank's internet-based transactions; (c) Overall, I am satisfied with the products/services offered by the bank; and (d) Overall, I am satisfied with the bank.

Research Framework

The framework examines the process through which internet banking service quality dimensions influence overall internet banking service quality and the relationship between overall internet banking service quality and customer satisfaction. The service quality dimensions that influence overall internet banking service quality

are: efficiency, fulfillment, system availability, privacy, assurance/trust, site aesthetics, responsiveness, and contact (see Figure 1).

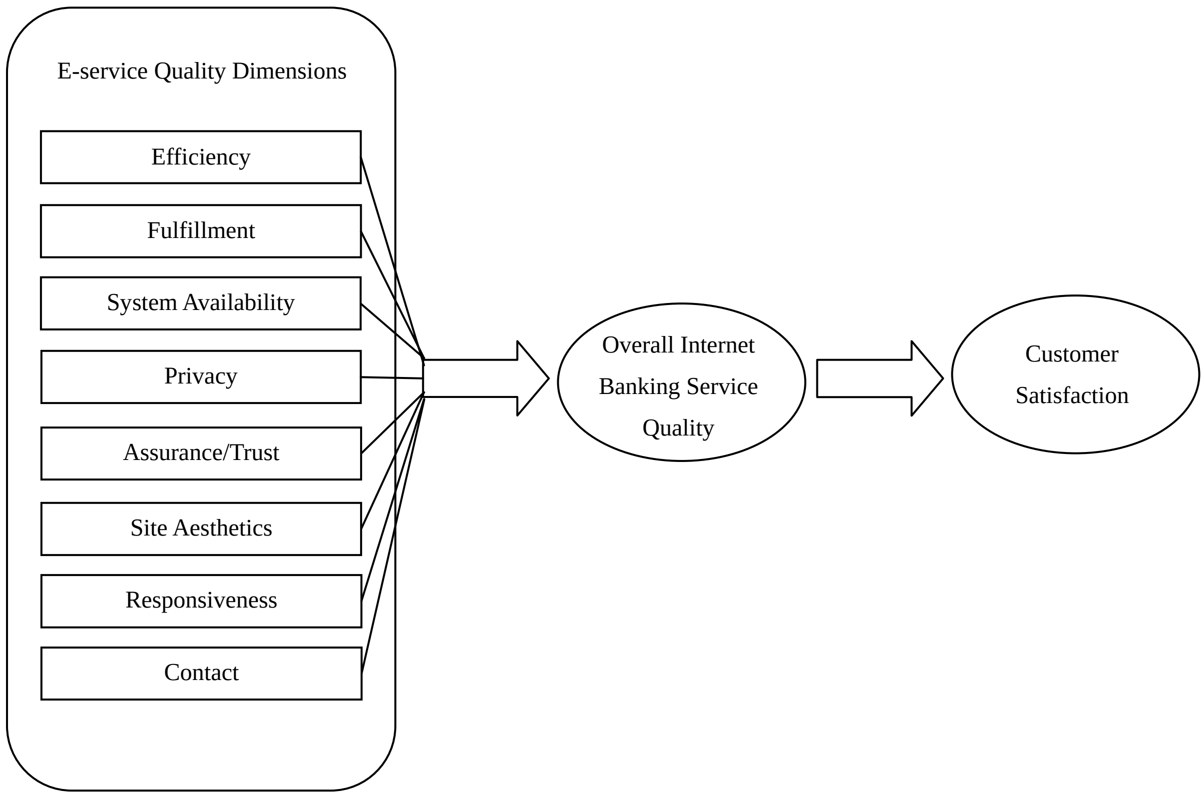

Figure 1. Research model.

Data Collection

This study depends mainly on primary data, which were collected from a sample of 160 respondents in the US.

The samples were identified randomly from California. Pre-test questionnaires were administered to 20 internet banking services users, with experience of online banking services. These respondents resembled the target sample to be surveyed. As a result of the pre-tests, some redundant questions were eliminated and some of the scales were adapted in order to facilitate understanding and to avoid erroneous interpretations.

A total of 200 American internet banking users were contacted during the survey. Final samples of 160 (80%) valid questionnaires were analyzed. The survey duration was approximately four weeks, from October 1 to October 29, 2013.

The data collected were analyzed by using the Statistical Package for Social Sciences (SPSS) software.

Data Analysis and Findings

In the current research, the researcher presents the empirical study and findings obtained by analyzing the data under study. This was done through the following: First, the researcher tests the reliability of the data under study by measuring the Cronbach's alpha for the variables under study; second, the researcher measures the discriminant validity as well as the convergent validity of the data under study; and finally, the researcher uses simple and multiple regression analysis to measure the hypotheses under study and the impact of

independent variables on the dependent variable (overall internet banking). The findings were also ranked as per the variable of the most impact. Also, the impact of overall banking service quality on customer satisfaction was tested.

Reliability Test

Reliability measures the internal consistency of the construct's items (observed variables or factors) forming the unobserved variable (Hair, Anderson, Tatham, & Black, 1998; Sekaran & Bougie, 2005). Cronbach's coefficient alpha is the reliability indicator and ranges from zero to one. Values closer to one indicate higher reliability and vice versa. The researcher accepted values greater than 0.65. Table 1 provides an overview of the reliability scores. As can be seen from this table, all the alpha coefficients were above the required level of 0.65, which is an acceptable level for the reliability of the variables.

Table 1

Study Factor and Reliabilities

Variable	Number of items	Cronbach's alpha
Efficiency	5	0.768
Fulfillment	4	0.760
System availability	2	0.842
Privacy	2	0.761
Assurance	2	0.726
Responsiveness	2	0.744
Contact	2	0.672
Overall banking service quality	2	0.858
Customer satisfaction	4	0.931

Validity Tests

Validity means the extent to which an instrument measures what it is supposed to measure correctly (Hair et al., 1998; Sekaran & Bougie, 2005). The researcher used some validity tests, like the convergent and discriminant tests.

Convergent validity tests the data using factor analysis (multivariate technique) that confirms whether or not the theorized dimensions are applicable (Sekaran & Bougie, 2005). Convergent validity was essential to ensure that the items measuring the same construct are highly correlated (Hair et al., 1998). In order to test the convergent validity, the average value extracted for each of the scales was calculated. The average variance extracted (AVE) represents the average community for each latent factor, and in an adequate model, it should be greater than 0.5, which means that the factors should explain at least half the variance of their respective indicators (Hair et al., 1998). The results of the factor analysis conducted on research constructs indicate that AVE values for all scales were found to have convergent validity, reporting AVE values above 0.5 as represented in Table 2. Item reliability was evaluated by the size of the loadings of the measures on their corresponding constructs. The loadings should be at least 0.60 and ideally at 0.7 or above (Chin, 1998), indicating that each measure is accounting for 50% or more of the variance of the underlying latent variable (Fornell & Larcker, 1981). Table 2 shows that all loadings exceeded 0.60, thus indicating adequate convergent validity.

Table 2

AVE and Factor Loadings

The study variable	AVE in %	Factor loading of items
Efficiency		
Item 1		0.649
Item 2		0.676
Item 3	78.106	0.692
Item 4		0.825
Item 5		0.764
Fulfillment		
Item 1		0.803
Item 2	66.928	0.786
Item 3		0.685
Item 4		0.781
System availability		
Item 1	86.397	0.929
Item 2		0.929
Privacy		
Item 1	77.003	0.878
Item 2		0.878
Assurance		
Item 1	79.954	0.894
Item 2		0.894
Responsiveness		
Item 1	79.802	0.893
Item 2		0.893
Contact		
Item 1	76.370	0.874
Item 2		0.874
Banking service quality		
Item 1	82.507	0.908
Item 2		0.908
Customer satisfaction		
Item 1		0.933
Item 2	83.173	0.888
Item 3		0.896
Item 4		0.931

Also, discriminant validity means that the variable concept should be sufficiently different from other similar concepts test. Some papers considered that correlation coefficient of any two variables are weak, if it is smaller than the cronbach's alpha for both variables (Sharma & Patterson, 1999). It can be observed that significant correlations exist among research variables, but their correlations are lower than their cronbach's alpha coefficient values. This indicates that respondents could discriminate among current research variables when answering the survey. Also, Chin (1998) stated that if the square root of the AVE for each construct is larger than the correlation between the construct and any other construct in the model, then the measures should be considered to have adequate discriminant validity. Applying Chin's method, Table 3 shows that all constructs in the estimated model satisfied this criterion. As shown in Table 4, each construct shares a greater

variance with its own measures than with any other construct. This reveals that each construct is more closely related to its own measures than to those of other constructs, and discriminant validity is supported in this study (Fornell & Larcker, 1981). Since none of the correlations below exceeded the square root of the AVE of the corresponding variables, the criteria for discriminant validity were considered as satisfied.

Table 3

Correlation Between Variables and Items

Measure	Efficiency	Fulfillment	System availability	Privacy	Assurance	Resp.	Contact	Banking service quality	Customer satisfaction
Eff.1	0.385	0.496	0.342	0.456	0.479	0.315	0.283	0.466	0.529
Eff.2	0.574	0.590	0.303	0.313	0.289	0.364	0.277	0.506	0.521
Eff.3	0.435	0.436	0.182	0.328	0.330	0.212	0.207	0.342	0.367
Eff.4	0.814	0.505	0.368	0.359	0.368	0.333	0.252	0.558	0.539
Eff.5	0.855	0.361	0.331	0.257	0.117	0.292	0.243	0.493	0.507
Ful.1	0.443	0.816	0.424	0.470	0.607	0.470	0.180	0.540	0.509
Ful.2	0.335	0.654	0.558	0.575	0.595	0.587	0.309	0.439	0.428
Ful.3	0.462	0.372	0.280	0.362	0.359	0.179	0.206	0.399	0.327
Ful.4	0.457	0.774	0.304	0.424	0.305	0.397	0.311	0.639	0.566
System av.1	0.316	0.392	0.896	0.674	0.564	0.382	0.073	0.350	0.324
System av.2	0.365	0.493	0.902	0.732	0.581	0.379	0.192	0.401	0.413
Priv.1	0.284	0.429	0.647	0.875	0.641	0.556	0.229	0.378	0.390
Priv.2	0.391	0.445	0.655	0.772	0.486	0.371	0.311	0.493	0.535
Ass.1	0.282	0.551	0.482	0.597	0.807	0.554	0.250	0.315	0.355
Ass.2	0.273	0.550	0.546	0.667	0.878	0.541	0.179	0.478	0.481
Resp.1	0.251	0.517	0.323	0.375	0.463	0.834	0.331	0.296	0.392
Resp.2	0.379	0.445	0.362	0.439	0.466	0.874	0.440	0.459	0.461
Cont.1	0.234	0.219	0.210	0.216	0.203	0.396	0.856	0.372	0.460
Cont.2	0.186	0.240	0.066	0.221	0.063	0.324	0.804	0.475	0.466
Ban. SQual1	0.502	0.586	0.356	0.371	0.309	0.314	0.365	0.842	0.705
Ban. SQual2	0.476	0.537	0.348	0.404	0.361	0.376	0.442	0.878	0.827
CS1	0.566	0.545	0.321	0.386	0.388	0.495	0.498	0.754	0.949
CS2	0.543	0.560	0.321	0.426	0.404	0.387	0.470	0.678	0.806
CS3	0.503	0.598	0.368	0.402	0.399	0.457	0.409	0.809	0.829
CS4	0.506	0.520	0.355	0.412	0.356	0.454	0.494	0.794	0.926

Table 4

Square Root of AVE for Variables Under Study

Variable	Square root of AVE
Efficiency	0.884
Fulfillment	0.818
System availability	0.929
Privacy	0.878
Assurance	0.894
Responsiveness	0.893
Contract	0.873
Banking service quality	0.908
Customer satisfaction	0.912

Inferential Statistics

The impacts of the proposed variables on the dependent variable are evaluated through conducting models using simple and multiple regression analysis. When checking the impact of the proposed variables on the overall banking service quality, it was found that “fulfillment” has the most significant effect on banking service quality (R^2 = 36.4%, *p*-value = 0.000). Then, the variable “efficiency” comes in the second order of impact. It has the next significant effect on banking service quality (R^2 = 31.9%, *p*-value = 0.000). The third variable in impact is the variable “site aesthetics” with R^2 = 27.7% and *p*-value = 0.000. The variable “contact” comes in the fourth order with R^2 = 18.2% and *p*-value = 0.000. Accordingly, the variables can be listed with respect to their effects on banking service quality as fulfillment, efficiency, site aesthetics, contact, privacy, responsiveness, assurance, and system availability. This result is obtained by comparing R^2 for each model fitted by each single variable and is shown in Table 5.

Table 5

Simple Regression Output for the Impact of Independent Variables on Overall Banking Service Quality

Variable	Proposed effect	*R*-squared (%)	Beta coefficient	Significance effect
Efficiency	Positive	31.9	0.641	0.000
Fulfillment	Positive	36.4	0.563	0.000
System availability	Positive	13.4	0.281	0.000
Privacy	Positive	17.9	0.356	0.000
Assurance	Positive	13.9	0.368	0.000
Responsiveness	Positive	17.6	0.331	0.000
Contact	Positive	18.2	0.323	0.000
Site aesthetics	Positive	27.7	0.415	0.000

A stepwise regression analysis is then conducted to check the results obtained by simple regression analysis. By using this type of regression analysis, one may assess the direct impact of variables under study, as well as show the interaction effect of variables, which represents the combined effect of variables on the criterion or dependent variable (Aiken, West, & Reno, 1991; Foster & Stine, 2004).

Table 6 below shows the beta coefficients for each impact of the variables under study. Observing the values illustrates that the variable of the highest impact on overall banking service quality is the fulfillment variable, and that of the lowest impact is the contact variable. It can be observed that results obtained support the same ones obtained by the simple regression analysis.

Table 6

Stepwise Regression Model for Overall Banking Service Quality

Model	Unstandardized coefficient	*T*	Sig.
	B		
(Constant)	0.429	1.445	0.150
Efficiency	0.232	3.042	0.003
Fulfillment	0.346	5.751	0.000
Contact	0.126	2.791	0.006
Site aesthetics	0.218	4.565	0.000

The results of the multiple regression analysis are reported in Table 7, the variance explained in the dependent variable customer satisfaction by the overall banking service quality is 69.0%, which is significant (*F* = 48.481, *p*-value = 0.000). Overall banking service quality is significantly affecting satisfaction.

Regarding the impact of overall banking service quality, it can be observed that it has a positive, significant impact on customer satisfaction with R^2 = 69.0% and *p*-value = 0.000. This means that the model fitted is a significant one.

Table 7

Model Fit of Banking Service Quality on Satisfaction

Variable	Proposed effect	*R*-squared (%)	Beta coefficient	Significance effect
Banking service quality	Positive	69.0	0.818	0.000

Finally, it should be mentioned that the hypotheses under study are all accepted and supported.

Demographic Variables Analysis (Comparing Means)

While the *t*-test is used to compare the variance of only two groups, the analysis of variance (ANOVA) test is better fitted when we are examining more than two. The researcher here used *t*-test to compare the group's mean for the variables under study with respect to gender, while ANOVA is used to compare the group's mean for the variables under study with respect to age, length of internet banking usage, and frequency of internet banking usage.

When checking difference between means of different groups of customer satisfaction, groups were classified according to gender, age, length of internet banking usage, and frequency of internet banking usage. It was found that customer satisfaction groups differ only in case of the length of internet banking usage (see Table 8).

Table 8

Demographics Effect

Variable	Significance (*p*-value)
Gender	0.043
Age	0.868
Length of internet banking usage	0.060
Frequency of internet banking usage	0.894

Discussion and Conclusions

Customer perceived online service quality as one of the crucial determinants of the success of online businesses. Accordingly, considerable research has been conducted on the construct of online service quality; yet much of the literature is conceptual in nature, or based on a few case studies. Moreover, even the limited survey-based empirical literature examines the construct within narrowly defined online businesses such as online banks.

In order to fill the research gap, this study empirically examines the relationships of e-service quality dimensions with overall internet banking service quality, and its effect on customer satisfaction in the American banking services sector.

The results in this study indicate that there are eight key dimensions of e-service quality, including efficiency, fulfillment, system availability, privacy, assurance/trust, site aesthetics, responsiveness, and contact, which influence overall internet banking service quality and the relationship between overall internet banking service quality and customer satisfaction. The Cronbach's alpha test of reliability proved the relative reliability

of the dimensions used in the model. The test of the measurement model includes the estimation of convergent and discriminant validity of the instrument items. The measurement model results provided support for convergent and discriminant validities of the measures used in this research.

Findings of the stepwise regression analysis indicate that there is a positive and significant effect in the case of fulfillment, system availability, privacy, assurance/trust, site aesthetics, responsiveness, and contact on overall internet banking service quality in the US.

The strongest predictor is the fulfillment attribute, which has a positive and significant relationship with overall internet banking service quality. Fulfillment, therefore, is a critical success factor in the effective delivery of internet banking service quality. The second strongest predictor is efficiency, which is highly important for overall internet banking service quality. The rest of variables can be listed with respect to their effects on overall internet banking service quality as site aesthetics, contact, privacy, responsiveness, assurance, and finally system availability. It should be highlighted that "assurance/trust and site aesthetics", which are the added dimensions in this study, are significant variables in the stepwise model obtained. This has proven that these dimensions become important when considering internet banking service quality and thus customer satisfaction. This means that H1, H2, H3, H4, H5, H6, H7, and H8 are all supported.

This research also found that these dimensions directly affect customers' perceptions of overall internet banking service quality, which influences overall customer satisfaction with the bank. It also shows a significant and positive relationship between perceptions of overall internet banking service quality and customer satisfaction. Therefore, H9 is also supported.

The strong positive association between overall internet banking service quality and customer satisfaction suggests that when overall internet banking service quality is perceived to be high, customers are more likely to be satisfied with their online services and consequently will be more satisfied with their banks. Finally, this study also found that customer satisfaction groups differ only in case of the length of internet banking usage.

Limitations and Future Research

This study has offered some valuable insights into studies on e-service quality in internet banking, which involves a number of limitations that need to be acknowledged. First, the empirical study was conducted only in the US, and the size of sample was relatively limited. Thus, it is recommended to replicate the study in different countries to get an international sample. Another avenue for future research is to examine the dimensions and outcome of internet banking service quality in a wider sample of banks. Second, this study concerned itself only with the banking services' sector, other areas like the education sector and e-government services could benefit from similar studies.

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Assessing Financial Performance of Malaysian Islamic and Conventional Commercial Banks Using Financial Ratios*

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A rapid growth of Islamic banking has led the Malaysian economy to gaining greater prosperity than before. Presently, there are more than 20 Islamic banks operating in Malaysia. Financial ratios calculated from the categories of liquidity, profitability, risk and solvency, and efficiency of banks can be used to gauge the overall financial performance of the banking industry. The objective is to assess the overall performance of Islamic banks as well as conventional banks in Malaysia using financial ratios. The findings indicated that conventional commercial banks in Malaysia do have better quality assets, are more liquid, and are more profitable than Islamic banks. Total expenses in conventional banks are much higher, which may affect profitability and the significant amount of non-performing loans (NPLs), thus increasing solvency risk. The findings show positive insights of Islamic banks, whose confidence and trust are rising, over a short period with strong improvements in asset utilization, effective management, and expenditure control. This comparative study clearly identified that conventional banks are better financial performers compared to Islamic banks in Malaysia during the period of 2006-2010.

Keywords: conventional banks, Islamic banks, financial ratios, performance

Introduction

Commercial banks contributed greatly to the development of a nation's financial and economic systems. If a bank performs poorly, it will have a negative impact on a nation's financial market. Apart from that, Islamic banking began as a theological dream has today become a practical reality and has been accepted worldwide. Islamic banking is an integral part of the Islamic financial industry and plays a significant role and contributes to the economic growth of Malaysia.

Islamic banks are only allowed to generate returns through investments that complied to the *Shariah* principles. All business operations are based on sharing the risk that may arise through trading and investment activities using contracts of various Islamic modes. Thus, Islamic banks may be more volatile in their returns compared to conventional banks.

Islamic banking system in Malaysia is expanding rapidly with a dual banking environment. This means that the Islamic banking system in Malaysia is running parallel to the conventional system. In other words, their

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progressive advancements are indeed a manifestation of their abilities (as an effective form of financial intermediation) in promoting economic growth and development. Furthermore, Islamic banking has also expanded beyond the traditional borders of Muslim-dominated economies into the major industrial economies and has drawn interest not only from Muslim but also from non-Muslim.

The Islamic Banking Act had come into effect on April 7, 1983, where all Islamic banks are supervised and regulated by Bank Negara Malaysia (BNM). The long-term objective of BNM is to create an Islamic banking system that runs on a parallel basis with the conventional banking system. Bank Islam Malaysia Berhad (BIMB) was the first Islamic bank licensed to operate in Malaysia on July 1, 1983.

The rapid evolution of Islamic banking businesses has led to more foreign Islamic banks' branches operating in Malaysia. In 2004, Kuwait Finance House, Al Rajhi Bank, and Asian Finance Bank were granted licenses by BNM to operate Islamic banking in Malaysia. Apart from that, many foreign banks such as OCBC Malaysia and Standard Chartered Bank Malaysia Berhad participated in Islamic banking schemes. The Central Bank of Malaysia, BNM also introduced the concept of Islamic banking subsidiary and issued licenses to RHB Islamic Bank, Commercial Tijari Bank, and Hong Leong Islamic Bank in 2005. In the 2009 Annual Report of the Institute of Bank-Bank Malaysia, it is stated that all these new participations have made Islamic banking system in Malaysia more competitive and challenging.

To date, there are 17 Islamic banking institutions (nine Islamic subsidiaries of the domestic banking groups, two domestic Islamic banks, and six foreign Islamic banks); two new international Islamic banks were offered licenses by BNM to commence operations in 2012. All banking products and services adopted by Islamic banks must comply with the *Shariah* principles. A brief explanation of the most widely used *Shariah* principles can be referred to Imran and Ghulam (2009).

For this study, the objective is to use financial ratio indicators to assess the overall performance of Islamic banks as well as conventional banks in Malaysia, and we observed the effects on profitability, liquidity, risk and solvency, as well as efficiency of these banks.

Literature Review

This section reviews the challenges and opportunities of Islamic and conventional banks based on the selected empirical studies and researches done on Islamic banking and conventional banking in Malaysia and around the world.

Iqbal (2001) compared the financial ratios of 12 conventional banks and Islamic banks during the years from 1990 to 1998. He found that the return on assets (ROA) and return on equity (ROE) of Islamic banks (23% and 22.6%) were higher than conventional banks (13.5% and 15%). He concluded that the profit ratio of Islamic banks is much higher than conventional banks as compared by international standards. It should be noted that conventional banks' depositors are guaranteed their principal amounts and hence, bear less risk than Islamic banks' depositors. Therefore, the depositors of Islamic banks would genuinely expect a higher rate of return to compensate for extra risk. This is further supported by a study carried out by Samad (1999) to assess the relative efficiency of Islamic banks in the period of 1992-1996 compared with conventional banks in the country. He found that Bank Islam Malaysia enjoyed a relatively high efficiency of the management compared to conventional banks.

Kader and Asarpota (2007) had used the financial ratios to evaluate the performance of United Arab Emirates (UAE) Islamic banks during the period of 2000-2004. Hence, he found that UAE Islamic banks were

more profitable than UAE conventional banks. In other words, Islamic banks were less risky, more liquid, and efficient than conventional banks. They had concluded that there were two implications associated in this study. The first key reason is that Islamic banks share profits and losses of the property paradigm may be regarded as a rapid growth in the UAE Islamic banks. Second, due to the reason that the practice of UAE Islamic banks was slightly different from UAE conventional banks, Islamic banks' practice should be regulated and supervised in different ways.

Hassoune (2002) examined the profitability and performance of Islamic banks in an interest rate cycle. This dissertation was about Islamic banks' operating profit and loss on a shared basis, whereas the conventional banking business is based on the interest. Moreover, he also compared the ROA and ROE volatility in the three Gulf regions, such as Kuwait, Qatar, as well as Saudi Arabia. He pointed out that the Islamic bank's profit and loss sharing basis, management must generate sufficient return to investors instead of no return.

Alkassim (2005) analyzed the performance of both conventional banking and Islamic banking in the Gulf Cooperation Council (GCC) regions during the period of 1997-2004. Hence, the result showed that the conventional banks in GCC regions had greater asset quality compared to Islamic banks. However, Islamic banks in GCC were better capitalized.

Johnes, Izzeldin, and Pappas (2008) analyzed the efficiency of Islamic banks and conventional banks in GCC regions during the period of 2004-2007 using the financial indicators analysis and data envelopment analysis (DEA). Through the financial ratio analysis, they found that conventional banks in GCC regions had greater efficiency compared to Islamic banks. However, conventional banks had lower revenue and poor profit efficiency than Islamic banks. In contrast, for DEA, the average of efficiency for Islamic banks was slightly lower than conventional banks. Johnes et al. (2008) also mentioned a number of reasons why the conventional banks were cost efficient than Islamic banks.

In a study of risk sensitivity of the Malaysian banking industry by Chan and Yap (2011), banks' profitability is exposed to liquidity and interest risk, operating risk, country risk, and exchange rate risk. The mean for liquidity and interest risk is the highest compared to other risk factors found in this study of Malaysian banks.

Research Design

The data source included financial variables such as profitability ratio, risk and solvency ratio, efficiency ratio, as well as liquidity ratio. All the information were obtained through electronic journal databases such as banks' websites, banks' annual reports, database of BNM, and government and corporation publications for the study period of 2006-2010.

We adopted similar techniques (financial ratio analysis) used by Awan (2009) to measure the asset quality, profitability, and earnings potential of Islamic banks and conventional banks. He categorized them into four groups, which were profitability ratio, risk and solvency ratio, efficiency ratio, and liquidity ratio. Furthermore, we also compared total assets (TA), total deposits, total equities (TE), and total financing (TF) of both conventional banks and Islamic banks in our assessment of performance for the period of 2006-2010. A total of 14 financial ratios and indicators are utilized to gauge the performances of Islamic banks and conventional banks.

These financial variables (ratios) are commonly used by researchers worldwide (see Table 1).

Table 1
Financial Variables Used for Analysis

Variable	Financial ratio	Formula
ROA	Return on assets	Net income/total assets
ROE	Return on equity	Net income/total equities
EPS	Earnings per share	Profit available to equity shareholders/average number of issued equity shares
PER	Profit to expense ratio	Profit before tax/operating expense
NPLs	Non-performing loans	Non-performing loans/net loans
CAR	Capital adequacy ratio	Regulatory capital/risk weighted assets
EM	Equity multiplier	Total assets/total shareholder’s equity
DTAR	Debt to total assets ratio	Total debt/total assets
DER	Debt to equity ratio	Total liabilities/shareholder’s equity
LDR	Loan to deposit ratio	Net loans/total deposits
LAR	Loan to asset ratio	Net loans/total assets
IER	Income to expense ratio	Total income/total operating expense
TA	Total assets	Outstanding debt plus shareholder’s equity
TF	Total financing	Amount of capital provided to customers for business activities
TD	Total debt	Funds placed in a depository institution’s account
TE	Total equities	Capital provided by shareholders

Note. Source: Chan, Kong, and Yap (2012).

Profitability Ratios

Profitability ratios are used to assess a bank’s ability to generate revenue as compared to its expenses and other relevant costs incurred during a specific period of time (Investopedia, 2011a). If a profitability ratio is relatively greater as compared to the competitors, industry averages, guidelines, or the same as in previous years, then it is taken as an indicator of better performance of the bank (Moin, 2008). There are ROA, ROE, EPS, and PER.

Risk and Solvency Ratio

Usually, investors will use solvency ratio to assess the debt profile of a bank from the financial statements, and they will analyze whether the bank needs for debt restructuring such as mortgage refinancing or debt consolidation (Financial Modeling Guide, 2007). If solvency ratio is more than 20%, it is considered as financially healthy or solvent, whereas a lower solvency ratio indicates that there is a probability of default of its bank debt. The five common solvency ratios are NPLs, CAR, EM, DTAR, and DER.

Liquidity Ratio

Liquidity ratio is used to determine a bank’s ability to settle off its short-term debts or bills obligations, maintain cash position, and collect receivables. Likewise, it is used to determine how banks would frequently convert their assets to meet the depositor and the borrower’s cash needs into cash. In general, the higher liquidity ratio indicates that the bank has greater safety margin and that the bank possesses the capability to pay off short-term debts (Investopedia, 2011b). Banks can fall into liquidity problem especially when withdrawals exceed new deposit in a short period of time. There are two frequently used liquidity ratios: LDR and LAR (Investopia, 2011c).

Efficiency Ratio

Efficiency ratio is usually applied to a bank to evaluate how effective or efficient the bank is in controlling

and managing its assets and expenses, whether the bank is undertrading or overtrading on its equity, and the promptness of payment to suppliers. In other words, it is used to describe the productivity of a bank while generating revenue. This financial indicator is often used in the banking sector to examine the managerial efficiency in generating total income versus controlling its operating expenses. Higher IER indicates that the bank has the ability to generate more income as compared to total operating expenses.

Other Measures

TA represents the resources owned by a bank, whereas the liabilities (debt) and shareholder's equity indicate how those resources are financed (Keown, Martin, Petty, & Scot, 2005), which are presented in the balance sheet. There are various types of assets such as building and equipment, patents, investment, and so on. Banks with higher TA means that they have more liquidity. TF is the amount of capital provided by a bank to customers for business activities or making purchases and investing purposes. Total deposits are the funds placed in a depository institution's account to increase the amount of the credit balance. This is also a down payment given in advance to support the intention to complete a commercial transaction. TE is an important variable to measure the strength of a bank. In other words, it is used to determine how much shareholders would receive in the event of a company-wide liquidation.

Sample of Research

In this study, we selected 10 licensed commercial banking institutions including Islamic commercial banks randomly. These five conventional banks and five Islamic banks were selected on the basis of availability of data, and above financial ratios were readily available for these banks. The period of study started from 2006 to 2010, which also contributed to this selection. These selected banks are categorized in Table 2.

Table 2

Selected Conventional and Islamic Banks in Malaysia for This Study

Conventional bank	Islamic bank
Public Bank Berhad	Muamalat Bank
OCBC Bank (Malaysia) Berhad	BIMB
Hong Kong and Shanghai Banking Corporation (HSBC) Bank (Malaysia) Berhad	Hong Leong Islamic Bank Berhad
Commerce International Merchant Bank (CIMB) Bank Berhad	Asian Finance Bank Berhad
Alliance Bank Berhad	CIMB Islamic Bank Berhad

Note. Source: BNM website: http://www.bnm.gov.my/index.php?ch=13&cat=banking&type=cb.

Findings

This section discusses the research findings of this study. Financial ratio analysis has been computed on the 10 selected banks categorized as conventional and Islamic banks. All financial ratios are calculated and formatted into Tables 3 and 4 for conventional and Islamic banks to assess their performances in Malaysia for the period of 2006-2010.

Financial Ratios

Based on the result, the average mean of ROA for conventional banks (1.116%) was higher than Islamic banks (0.45%) for the past five years. For conventional banks, the ROA had dramatically decreased from 1.151% to 1.075% and then we could see an upward trend with 1.43% in 2008. However, ROA of conventional banks fell significantly from 1.079% to 0.845% during the years from 2009 to 2010, although

there was a temporary recovery in 2008. The main reason for this decline in ROA was the deterioration in asset quality, especially loan's portfolio, as there have been significant provisions against NPLs over the years (Ali, 2008).

For Islamic banks, they were facing similar fluctuations as the conventional banks during that period. There was an upward trend in ROA from 0.288% to 0.6% during the years of 2006-2007. Islamic banks were focusing on growth and expansion strategies, which deviated the banks from profit-oriented strategies (Jaffar & Manarvi, 2011). Therefore, ROA performance analysis for conventional banks was better than Islamic banks.

Table 3

Financial Ratio Analysis of Conventional Banks

Financial ratio/year	Conventional bank					
	2006	2007	2008	2009	2010	Mean
Profitability ratios						
ROA (%)	1.151	1.075	1.43	1.079	0.845	1.116
ROE (%)	17.11	17.38	20.22	14.80	15.99	17.1
EPS (RM ¢)	98.09	121.83	155.70	122.17	147.02	128.96
PER (%)	121.8	115.4	138.4	118.2	126.5	124.1
Risk and solvency ratios						
NPLs (%)	4.338	2.89	2.012	1.922	2.29	2.69
CAR (%)	12.99	13.42	13.16	14.44	14.61	13.72
EM (%)	1,395.8	1,489.6	1,371.4	1,277.6	1,285.2	1,363.912
DTAR (%)	92.17	91.85	92.51	92.18	91.78	92.21
DER (%)	1,295.8	1,389.6	1,227.4	1,216.4	1,149.2	1,265.7
Liquidity ratios						
LDR (%)	83.33	76.33	77.42	72.77	78.18	77.61
LAR (%)	59.25	55.88	56.44	55.48	59.17	57.24
Efficiency ratio						
IER (%)	247.2	247.4	251	234.4	241.2	244.24
Other financial indicators (RM'000)						
TA	99,166,163	93,505,540	86,761,857	82,624,385	71,912,806	86,794,150
TF	337,480,657	47,359,405	51,243,406	54,128,925	60,562,534	50,154,985
TD	51,782,549	62,263,432	64,904,160	70,671,856	73,546,363	64,633,672
TE	5,238,268	5,567,437	6,078,411	7,078,318	7,837,405	6,359,967

Note. Source: Chan et al. (2012).

From the study of both conventional banks and Islamic banks, we could see that the results have shown that the average ROE of Islamic banks (8.38%) was lower than the average ROE of conventional banks (17.1%) for the past five years. Conventional banks have greater ROEs compared to the ROEs of Islamic banks during the years of 2006-2010. For conventional banks, there was an increasing trend in the ROE from 2006 to 2008, with 17.11% in 2006 and 17.38% in 2007 to 20.22% in 2008. However, there was a downward trend from 20.22% in 2008 to 14.80% in 2009 due to the reason of bad quality of loans (Ali, 2008), and thereafter increased to 15.99% in 2010.

Islamic bank's ROE also fluctuated during the past five years. The ROE ratio has given us an insight that there has been a deteriorating trend in Islamic banks' profits during the years of 2006-2010. The main factors for this stability in the ROE ratio for Islamic banks have been better quality of asset management and making

inroads in the niche market and the Murabaha financing, being a fixed price sale on deferred payment terms, gaining momentum (Ali, 2008). However, there is a momentous decrease from 9.75% in 2007 to 9.66% in 2008 and then to 8.38% in 2009 and ended up with an increase in 2010 at 9.59%. Therefore, ROE performance analysis for conventional banks seemed to be better than Islamic banks.

Table 4

Financial Ratio Analysis of Islamic Banks

Financial ratio/year	Islamic bank					
	2006	2007	2008	2009	2010	Mean
Profitability ratios						
ROA (%)	0.288	0.6	0.432	0.497	0.433	0.45
ROE (%)	4.52	9.75	9.66	8.38	9.59	8.38
EPS (RM ¢)	-26.21	12.37	10.31	11.12	17.83	5.08
PER (%)	-30.67	74.04	58.76	85.51	100.14	57.56
Risk and solvency ratios						
NPLs (%)	3.17	5.08	2.87	2.06	2.76	3.19
CAR (%)	41.21	53.93	29.96	20.51	23.85	33.89
EM (%)	572.25	1,287.12	1,409.27	1,605.19	1,382.84	1,251.33
DTAR (%)	89.16	88.88	92.47	91.87	90.88	90.65
DER (%)	336.05	1,187	1,095.4	1,505.2	1,282.8	1,081.32
Liquidity ratios						
LDR (%)	46.43	40.41	45.99	58.1	62.112	50.61
LAR (%)	38.37	34.93	35.66	41.94	43.64	38.91
Efficiency ratio						
IER (%)	46.97	167.24	154.36	169.32	179.34	143.44
Other financial indicators (RM'000)						
TA	7,476,274	9,880,945	13,314,914	16,390,610	18,898,436	13,192,236
TF	20,043,594	4,355,256	5,527,858	7,734,928	9,441,633	9,420,654
TD	6,306,243	8,674,700	10,811,088	13,103,073	14,428,912	10,664,803
TE	307,292.4	680,486.8	748,553.4	954,361.6	1,274,141.2	792,967.10

Note. Source: Chan et al. (2012).

Based on the result, the EPS of conventional banks was higher than Islamic banks. The mean average ratio of conventional banks (128.96 cent) has surpassed around 96% more than Islamic banks (5.08 cent). The EPS for conventional banks has increased significantly from 98.09 cent in 2006 to 121.83 cent in 2007 and then to 155.70 cent in 2008. However, we could also see a sharp decline to 122.17 cent in 2009 and ended up with an increase of 9.23% in 2010 (147.02 cent). The main factor affecting the decline was that conventional banks were more focused on consolidation of their capital base and least concerned with profitability (Ali, 2008).

In the past five years, the EPS of Islamic banks had seen a critical fluctuation within the range from -26.21 cent (lowest) in 2006 to 17.83 cent (highest) in 2010. Unfortunately, there was a downward trend from 12.37 cent in 2007 to 10.31 cent in 2008, which is about 9.08% decrease. However, the EPS of Islamic banks has increased from 11.12 cent to 17.83 cent in the period of 2009-2010. This ratio has remained static, indicating that the Islamic banks' profits after taxes remained in the same range, while there has been an increasing share capital trend due to the BNM capital requirement. Therefore, EPS for conventional banks is greater than Islamic banks.

Based on the results, it has been shown that the PER of conventional banks was higher than Islamic banks. The mean average ratio of conventional banks (124.1%) was greater than Islamic banks (57.56%), and it was about 37% higher than Islamic banks. In addition, it also indicated that the conventional banks have generated higher profits than Islamic banks with every ringgit Malaysia of expense spent during the years of 2006-2010.

In contrast, the PER of Islamic banks witnessed an increasing trend from -30.67% in 2006 to 74.04% in 2007, but in 2008, it declined to 58.76%. However, it ended up showing an increasing trend from 85.51% in 2009 to 100.14% in 2010. There was no doubt that the overall result of PER favored the conventional banks. However, Islamic banks are better in implementing continuous improvement in the ROA, satisfying their shareholders in offering competitive or even better returns, and also managing their operating expenses (Ali, 2008). But, conventional banks performed much better than Islamic banks in terms of PER.

Analysis of NPLs showed that the Islamic banks have more NPLs compared to conventional banks which have a mean average of 3.19% during the past five years. Overall, NPLs of Islamic banks were higher than conventional banks except for the year 2006.

On the one hand, the NPLs ratio indicated a deteriorating credit portfolio in Islamic banks compared to conventional banks whose NPLs ratio is just 2.69% compared to 3.19% of Islamic banks. There was an increasing trend from 3.17% in 2006 to 5.08% in 2007; afterwards, there was a decreasing trend in subsequent years. Finally, it increased to 2.76% in 2010. This result has shown that the Islamic banks were risky and less solvent as well as imprudent in their lending and the recovery of defaulted loans. Therefore, NPLs performance analysis for conventional banks was more solvent and less risky than Islamic banks. We can conclude that conventional banks were more efficient in managing the credit portfolio than Islamic banks for the period of 2006-2010.

We can see that the mean average of CAR, for Islamic banks, was greater than conventional banks, which was 33.89% for Islamic banks compared to 13.72% for conventional banks during the period of 2006-2010. Moreover, this also showed that Islamic banks were more solvent and less risky than conventional banks.

The solvency CAR position of the Islamic banks had strengthened and settled at around 23.85% in 2010. At the same time, the CAR of Islamic banks had seen volatility during the past five years from 41.21% in 2006 to 53.93% in 2007; afterwards, it fell down to 29.96% in 2008. However, we could see a downward trend of CAR for Islamic banks from 29.96% in 2008 to 20.51% in 2009, and there was a significant increase of 23.85% in 2010. This had also indicated that the Islamic banks had abundant capital to manage any balance sheet impact as well as the ability to maintain confidence in the Islamic banking system and protect their depositors and lenders.

This risk performance measure, EM, showed that conventional banks have greater risk and are less solvent as compared to Islamic banks. Islamic banks' EM shows that they had low risk and required less debt to convert into asset with share capital. Conventional banks' EM has seen critical fluctuations during the period of 2006-2010. It increased from 1,395.8% in 2006 to 1,489.6% in 2007, then continuously decreased from 1,371.4% in 2008 to 1,227.6% in 2009 and ended up at 1,285.2% in 2010. This indicated that conventional banks need more assets to be financed by their equity than through debt capital.

In contrast, EM of Islamic banks has shown a continuous rising trend from 572.25% in 2006 to 1,287.12% in 2007 and from 1,409.27% in 2008 to 1,605.19% in 2009. However, it then decreased to 1,382.84% in 2010, which is about 7.4%. This result indicated that Islamic banks were solvent and less risky than conventional banks.

Based on the results, it has been shown that the mean average of DTAR for conventional banks (92.21%) was slightly higher than Islamic bank (90.65%) during the period of 2006-2010. The DTAR indicated that conventional banks have more risky business and finance most of their assets through debt as compared to the equity financing by Islamic banks. In addition, there seemed to be a similar pattern for both conventional banks and Islamic banks in the past five years.

The results show that the mean average of DER for conventional banks is 1,265.7%, greater than that of Islamic banks, which is 1,081.32%. This also implied that Islamic banks had taken a safer position and reduced the risk by financing their assets and operations through more of equity rather than debt (Jaffar & Manarvi, 2011). In contrast, the conventional banks financed their operations primarily through debt. During the period of 2006-2010, this ratio pointed out that the conventional banks were more risky compared to Islamic banks. Therefore, Islamic banks were less risky, as most of their assets are financed through equity as compared to debt financing by conventional banks for the period of 2006-2010.

This liquidity performance measure, LDR, has shown that the mean average of LDR for conventional banks (77.61%) was higher than Islamic banks (50.61%) during the period of 2006-2010. This also indicated that the conventional banks have more financial pressure by making excessive loans and facing greater risk and are less liquid as compared to Islamic banks that have excessive liquidity, lower LDR, potentially lower profits, and less risk.

Although the mean average of Islamic banks was lower than conventional banks, Islamic banks have increased more than conventional banks. LDR for Islamic banks indicated that they have used more deposits than conventional banks during the years of 2006-2010. Therefore, we concluded that Islamic banks have excessive liquidity, potentially lower profits, and less risk than conventional banks for the period of 2006-2010.

According to the results, we can see that the mean average of LAR for conventional banks (57.24%) was greater than Islamic banks (38.91%). Islamic banks were more liquid and paid less for loan settlement compared to conventional banks. This is a value-added potential sign of profitability and also conformed to the results drawn from profitability ratios of Islamic banks (Moin, 2008) as well as lending more compared to the year 2007. The overall result shows that Islamic banks were more liquid than conventional banks during the period of 2006-2010.

Based on the results, we can see that the mean average of IER for conventional banks (244.24%) was greater than Islamic banks (143.44%). Conventional banks have the ability and efficiency to generate more total income in comparison to total operating expense. Therefore, IER performance analysis indicates that conventional banks have the ability and efficiency to generate more total income than total operating expense. We concluded that Islamic banks were less efficient in generating more total income in comparison to total operating expense for the period of 2006-2010.

Other Ratios

Based on the results, we can see that the mean average of TA for conventional banks (RM86,794,150,000) was higher than Islamic banks (RM13,192,236,000), which is about 73% over the past five years. Conventional banks have generated a large volume of ringgit Malaysia as compared to Islamic banks during the period of 2006-2010. This indicated that most of the TA of conventional banks had loaned out and implied illiquidity. In addition, conventional banks have released a significant portion of their assets to liquidity instruments either in

securities investments or in cash while non-financial assets are at a minimum during the period of 2007-2010 (Ali, 2008). Therefore, the performance analysis showed that TA for conventional banks was greater than Islamic banks for the period of 2006-2010.

The average mean of TF for conventional banks (RM50,154,985,000) was greater than Islamic banks (RM9,420,654,000) during the period of 2006-2010. Although the mean average of Islamic banks was lower than conventional banks, both were facing similar trends at the same time. Thus, both conventional banks and Islamic banks were considered to be in low liquidity position and had more risk and potentially higher profitability. Therefore, TF for conventional banks was greater than Islamic banks for the period of 2006-2010.

Based on the results, we can see that the mean average of TD for conventional banks (RM64,633,672,000) is greater than Islamic banks (RM10,664,803,000), which shows that conventional banks have greater total deposits than Islamic banks over the past five years. It was about 72% higher than Islamic banks. Although there were increasing trends over the past five years for Islamic banks, the average total deposits were still lower than conventional banks. It was because that most of the customers did not understand well the concept of Islamic banking and Islamic banks are still an infant industry to Malaysian clients. Therefore, total deposits for conventional banks were greater than Islamic banks for the period of 2006-2010.

TE is a vital variable to determine the strength of a bank. According to the result, we can see that the average TE of conventional banks (RM6,359,967,000) was greater than that of Islamic banks (RM792,967,100) over the past five years. It was about 78% higher than Islamic banks. There was an increasing trend for conventional banks during the past five years. This indicated that the strength of conventional banks over the past five years was greater than Islamic banks. They were stronger in the banking industry compared to Islamic banks as well as improved capital asset ratio over time. Although there was an upward trend for Islamic banks for the past five years, it still shows that Islamic banks were weaker than conventional banks for the period of 2006-2010.

Conclusions

This study compared the financial performances of five Islamic banks and five conventional banks during the period of 2006-2010. The financial indicators such as profitability ratio, liquidity ratio, risk and solvency ratios, as well as efficiency ratios are applied in assessing the performance and evaluating these banks in terms of profitability to the shareholders and potential investors. A rapid growth of Islamic banking has led the Malaysian economy to gaining greater prosperity than before. Presently, there are more than 20 Islamic banks operating in Malaysia.

The empirical results have provided some insights about the financial performance metrics in Islamic banks and conventional banks. First, analysis of profitability ratios indicated that conventional banks are more profitable and have greater efficiencies than Islamic banks in ROA, ROE, PER, as well as EPS. These empirical results are consistent and intuitive with previous studies in Malaysia (Rosly & Abu Bakar, 2003). Based on the study, we found that the profitability ratios of conventional banks are better than Islamic banks in assessing a bank’s ability to generate revenue as compared to its expenses and other relevant costs incurred during a specific period of time.

As we mentioned before, the higher the risk and solvency ratio, the greater the risk is expected. From our results, we can conclude that the risk and solvency ratios of NPLs for conventional banks have lower risk and are more solvent as compared to Islamic banks. However, the CAR, EM, DER, and DTAR for conventional

banks are more risky and less solvent than Islamic banks. In other words, Islamic banks are more efficient than conventional banks in terms of CAR, EM, DER, as well as DTAR. This indicated that the products and services of Islamic banking system are more viable than conventional banks.

As observed, the liquidity measures in terms of LDR and LAR for conventional banks have more financial pressures to make excessive loans and thus face greater risk. Lower LDR and LAR of Islamic banks will increase liquidity, but lower profits. Thus, Islamic banks had a positive sign that people are considering Islamic financial products as an alternative to other viable financing options (Moin, 2008).

Last but not least, the finding of efficiency ratio in terms of IER of conventional banks was greater than Islamic banks. This also indicated that conventional banks are found to be more liquid and efficient in using their assets.

In conclusion, this comparative study clearly identifies that conventional banks are better financial performers compared to Islamic banks in Malaysia during the period of 2006-2010. On the one hand, the financial performance of Islamic banks is slightly better than previous years, on the other hand, these banks still need further improvements in order to compete with conventional banks. Furthermore, this study provides positive insights of Islamic banks which have shown strong improvements in asset utilization, effective management, and expenditure control and whose confidence and trust are rising.

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